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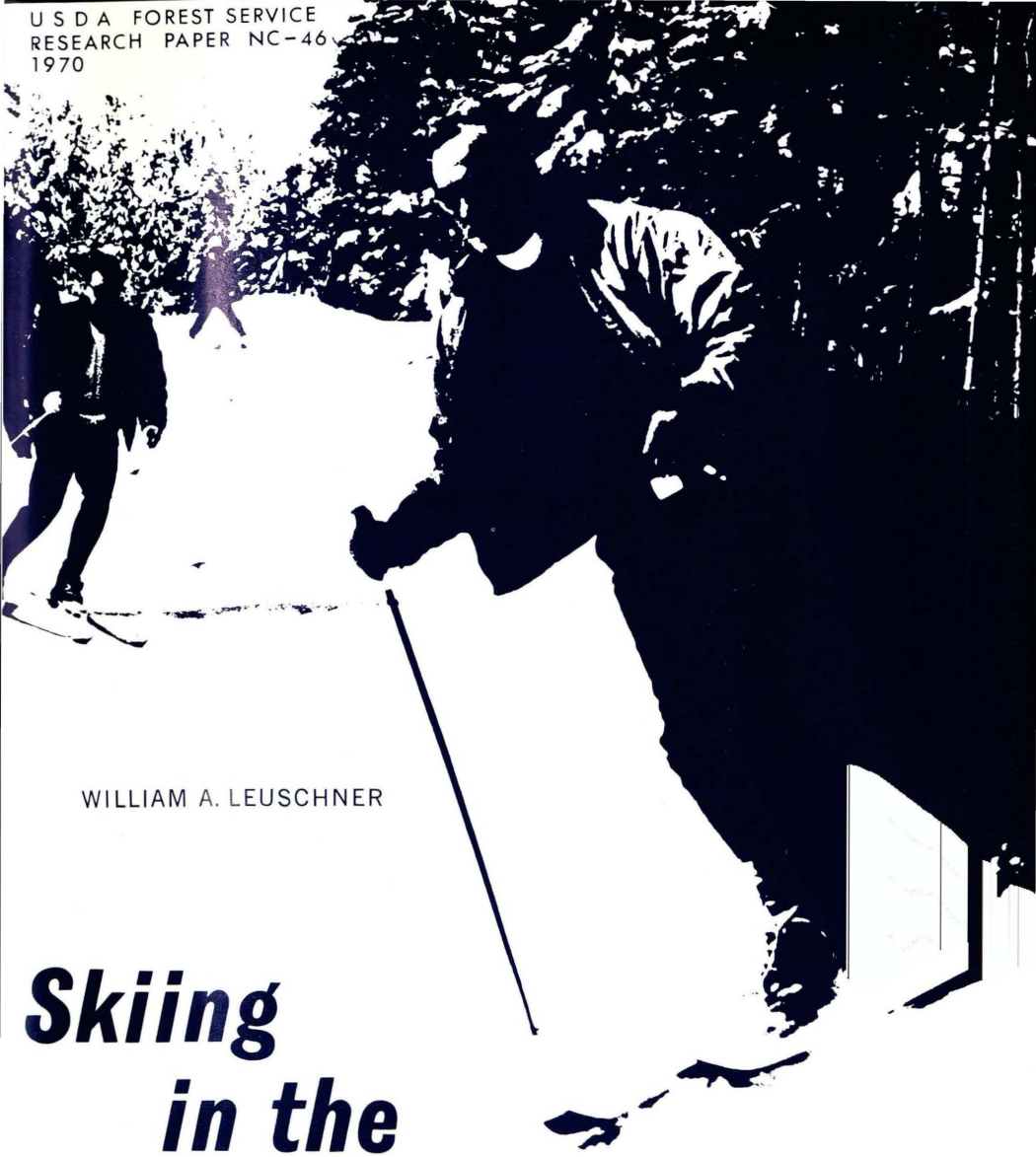

WILLIAM A. LEUSCHNER

Skiing in the Great Lake States:

THE INDUSTRY AND THE SKIER

NORTH CENTRAL FOREST EXPERIMENT STATION
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FOREWORD

Skiing has become increasingly popular in the Great Lakes Region in the past decade, heightening both private and public interest in building ski facilities. Information for investment decisions has been lacking due to the newness of the industry's expansion, the small size of ski areas, and the lack of organized data-gathering. Regional studies of the eastern and western skiing industries were made since 1960, but no comprehensive study was made in the Midwest. This report is intended to help fill that information gap by describing the industry and the skiers, and by analyzing the factors associated with financial success in ski-area operation.

The study covers the States of Illinois, Indiana, Michigan, Minnesota, and Wisconsin. Data were gathered over two skiing seasons. During the 1967-68 season about 84 percent of the Region's ski-area operators were interviewed. In 1968-69 the ski areas were again visited and a sample of skiers more than 12 years old taken. At the end of the 1968-69 season these skiers were sent questionnaires. In all, 147 ski-area operators were contacted and 2,350 usable skier questionnaires were received.

The study reported here was made by the North Central Forest Experiment Station, Forest Service, U.S. Department of Agriculture, which is solely responsible for the content of this report. The financial assistance of the Upper Great Lakes Regional Commission and the help of personnel from the Eastern Region, Forest Service, U.S. Department of Agriculture, are gratefully acknowledged.

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Ski areas in the Great Lakes region range from small units with a few rope tows to year-round resort complexes. (Photo courtesy of the Michigan Tourist Council, Lansing, Mich.)

SKIING IN THE GREAT LAKE STATES:

William A. Leuschner

THE GREAT LAKES SKIING INDUSTRY

The earliest reported commercial ski area in the Great Lakes Region was in Minnesota in 1932. Areas in Wisconsin and Michigan quickly followed. The growth in numbers of areas cannot be traced precisely. Some 148 areas were open in 1967, an estimated increase of 36 since 1960. In comparison, the western States had an increase of 45 areas between 1955 and 1964.

Ski areas in the Great Lakes Region differ greatly in size and facilities: some consist of a few rope tows and a "warming house," while others are year-round resort complexes with assets worth several million dollars. Despite this diversity of types and sizes, describing the "average" ski area provides a quick overall view of the Great Lakes skiing industry.

The average Great Lakes ski area has four rope tows and one cable tow or lift; these serve 7 acres of beginner slopes, 19 acres of intermediate slopes, and 12 acres of advanced slopes. Intermediate slopes predominate in both number and acreage regardless of the size of the ski area. The average vertical rise for ski areas is 242 feet. Those ski areas interviewed were open an average of 48 days during the season but the larger, better equipped areas averaged 75 days.

The Great Lakes skiing industry is unique in several ways. First, many ski areas are located close to cities, making skiing available to a large portion of the population almost daily. Further, half the areas provide night skiing (compared with 18 percent in the West in 1964), thereby giving the midwesterner an opportunity to ski after a day's work. Perhaps even more important is that the limited acreage of Great Lakes ski areas allows intensive management of the ski slopes. The best possible snow conditions are provided for the longest possible time through the use of slope grooming and snowmaking equipment.

A commonly used measure of ski-area size or capacity is tow and lift capacity in vertical transport feet per hour (VTF). VTF is calculated by multiplying the vertical rise of each tow and lift by the number of skiers per hour it can transport (p. 37). Total reported VTF capacity in the region increased an average of 13 percent per year by 1967 from 64.3 million VTF in 1960. This can be compared with 24 percent for the 10.4 million cable-only VTF in 1960 (fig. 1).[1] Michigan maintained itself as leader in total capacity during this period, although Minnesota had the greatest percentage increase. This capacity growth was concentrated in large ski areas.

Estimated attendance increased an average of nearly 20 percent per year from 1960 to 1967 but fell off slightly to 2.3 million visits during the 1967-68 season (fig. 2).[2] Projections show a diminishing rate of growth (p. 30).

Ski areas in the two largest capacity classes,[3] constituting 45 percent of all areas, captured 78 percent of the estimated skier visits. The rope only businesses (45 percent of the ski areas) had only 15 percent of the skier visits.

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1 "Cable" equipment in this report means any tow or lift not requiring the skier to grip a moving rope with his hands. "Combination" means both "rope" and "cable" equipment are present on a ski area. Cable-only VTF was measured separately because skiers preferred cable to rope facilities and because some people believe cable VTF can be measured more accurately than rope VTF.

2 See page 38 for the difference between estimated and reported attendance.

3 The ski areas were divided into five classes: rope tow only, and four combination rope and cable classes: (1) less than 300,000 VTF, (2) 300,000-699,999 VTF, (3) 700,000-1,499,999, and (4) 1,500,000 or more.

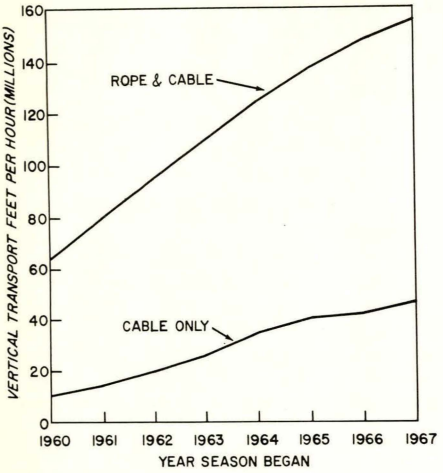


Figure 1.—Seven-year growth in ski area VTF capacity.

Capacity is one thing – use is another. If capacity is based on average number of days in the skiing season, the Great Lakes skiing industry is operating at 30 percent of its potential throughout the season, at 48 percent on weekends and holidays, and at 18 percent on weekdays.[4] However, if capacity is based on average skiable days, the season-long utilization is almost 47 percent, weekend-holiday utilization is 80 percent, and weekday utilization is 27 percent. In this case, the combination rope and cable areas use over 98 percent of their weekend-holiday capacity.

The overall utilization of western ski areas for 1963-64 was similar to the Great Lakes, but weekend-holiday utilization was much lower (49 percent). On the other hand, overall utilization in the eastern States in 1962-63 was 78 percent, with a remarkable 122 percent on weekends and holidays.

4 See page 37 for assumptions used to calculate capacity.

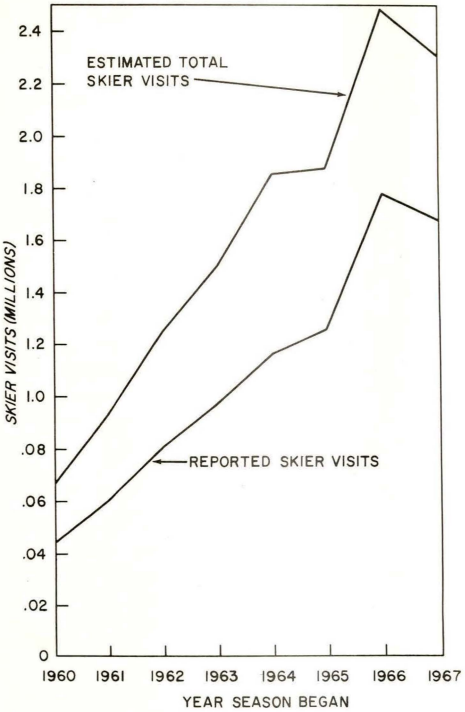


Figure 2.—Seven-year attendance trend.

Financial Trends and Market Structure

Financial data, and particularly those for the same ski areas for several years, are scarce so all that were available are being presented. The few earlier studies show the skiing industry to be relatively unprofitable (DuBois 1966; Federal Reserve Bank of Minneapolis 1964; Sissener 1960; Sno-Engineering 1967). These earlier findings were generally substantiated by the current study. Although the average income statement showed a loss before Federal income taxes between 1963-64 and 1965-66, there was an upward trend and profits were shown in the 1966-67 season (fig.3).

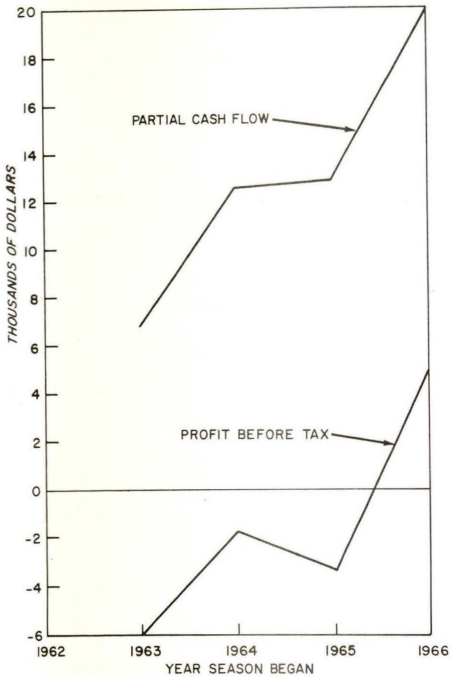


Figure 3.—Four-year profit trend of 27 areas (average per area).

All years would have appeared "profitable" if depreciation were not deducted.[5] This may explain how some ski areas operate several years at a loss – they liquidate their investment.

These income statements were from 27 ski areas for 4 consecutive years. This is a small base from which to generalize for the industry and the areas were not scientifically chosen. However, no other income statements were available for 4 consecutive years.

A $1,200,000 growth in total assets – an average of $46,000 per ski area – was found for the same 4 years (fig. 4). Funds for this increase came from $1,400,000 of long- and short-term debt, despite a $100,000 decrease in the equity accounts, indicating that debt financing was available. Land accounted for $200,000 of increased assets, buildings and equipment for $800,000, and "working capital" for the remainder. Investment peaked in 1965-66.

These investment data are from 26 ski areas, 18 of which also furnished income statements for the preceding profitability discussion. These areas were also not chosen scientifically.

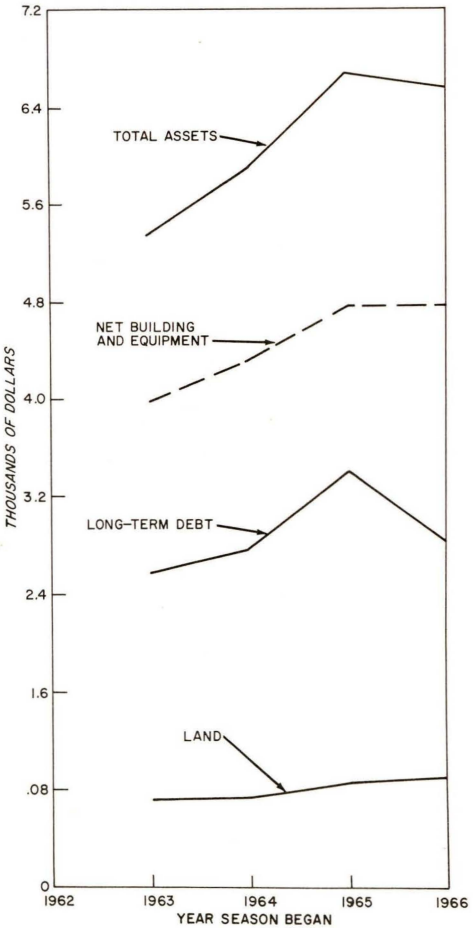


Figure 4.—Selected balance sheet accounts totaled for 26 ski areas.

[5] In 3 years only 20 of 27 areas reported their depreciation; in the fourth only 19 reported it. However, the above statements are correct because depreciation is added to profit and missing depreciation could only make the total higher.

Both the general economic climate of the skiing industry and factors associated with individual ski area success should be examined in assessing the likelihood of financial sucess. The market structure is important because some special feature may affect the likelihood of successful investment.

The market structure is usually assessed by considering the number of buyers and sellers, the degree to which one seller can make his product appear different from others, and the difficulty of entering or leaving the industry.

Buyers and Sellers

Considering the estimated 349,100 skiers in 1968-69 and the short season, it becomes obvious there are many buyers and that no one of them can ski enough to affect an area's operations. The major part of the discussion will therefore be devoted to the sellers.

Ski areas (sellers) may be categorized by the type of skiing they offer: single-day, weekend, or vacation trips.[6]

Single-day skiers travel an average of 68 miles one way, a fact that helps define the market area for ski areas catering to them. A look at the distribution of ski areas shows that less than a dozen would probably compete for the same single-day skier.

The weekend skier travels an average of 237 miles one way, thereby increasing the number of ski areas competing for his patronage. However, a few large ski areas apparently get much of the weekend trade. These "meccas" are familiar to most midwest ski enthusiasts. Moreover, some smaller rural areas cater to local, single-day skiers and therefore do not compete strongly for the weekend skier. On the other hand, the urban-oriented areas offer less expensive alternatives so the larger areas probably consider them. It is probable that only a few ski areas are in strong, direct competition for the same skier.

6 A single-day trip is one where the skier traveled to the ski area and returned home the same day; a weekend trip is one where the skier is away from home at least 1 night but less than 4 nights for the primary purpose of skiing; a vacation trip is one where the skier is away from home 4 or more nights for the primary purpose of skiing.

The Great Lakes ski areas providing vacation trips must compete with foreign and domestic package plans, private clubs, and a host of resorts accessible by air. If just the Great Lakes vacation market is considered, only a few resorts compete. Nevertheless, these large resorts face some competition because skiers may ski several different areas during the week.

In summary, the number of sellers competing for the same skier appears to increase from the single-day market through the vacation market, but never becomes so large that the actions of one ski area do not affect the business of the others. This is supported by the wide variety of tow and lift ticket prices (table 1).

Table 1.—*Summary of 1967-68 season prices* [1]

Price category (dollars)	Ski areas	Percent of all areas reporting	Price category (dollars)	Ski areas	Percent of all areas reporting
	Number			Number	
0.50	2	2	3.50	7	7
1.00	10	10	4.00	15	14
1.50	9	8	4.50	8	8
2.00	12	11	5.00	4	4
2.50	15	14	5.50	1	1
3.00	21	20	6.00	1	1

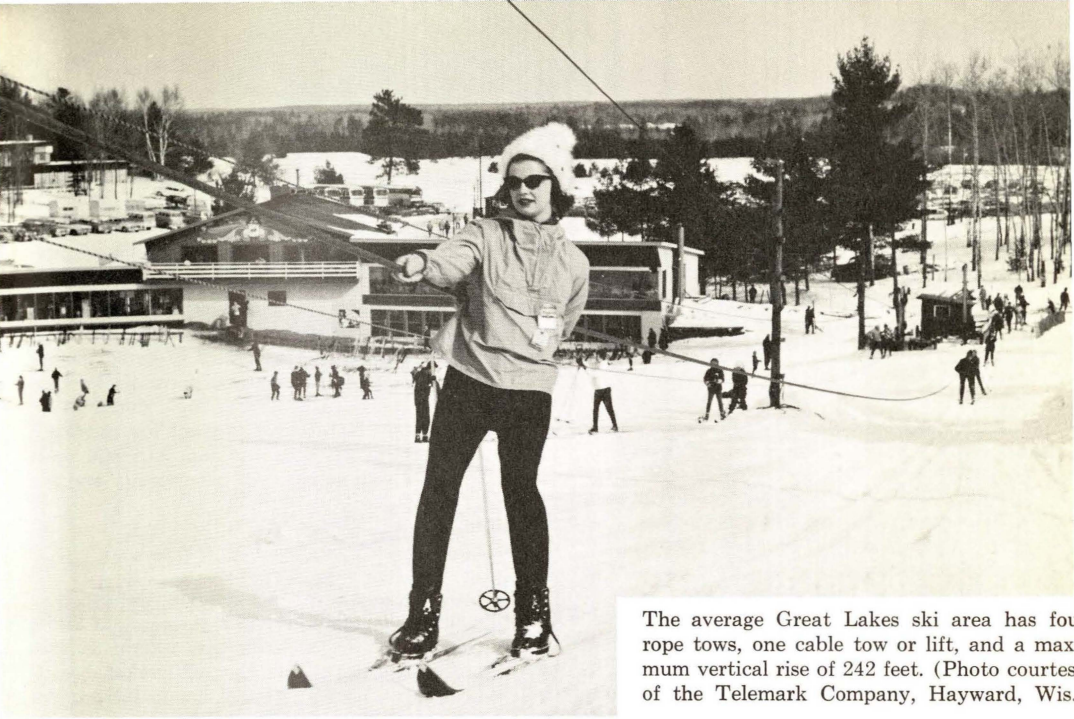
1/ This is the weighted average price of tickets throughout the 1967-68 season, including day tickets, season passes, package plan income allocated to ticket revenues, etc.

Product Differentiation

A ski area can exert more control over prices and protect a share of the market by differentiating its product. One way to differentiate is by manipulating the quality of the skiing experience (amount and condition of snow, type of tow and lift facilities, length of tow and lift lines, and variability of slopes and trails). Although statistical analysis did not show such quality factors to be related to financial success, skiers rated quality among the most important reasons for going to a particular ski area. Despite the lack of substantiating evidence, it appears to be an important element of differentiation.

Differentiation by location can be important, particularly in the single-day market. In fact, single-day skiers ranked location first among reasons for choosing an area.

Advertising is unlikely to keep skiers going to a particular area because they have ample opportunity to become acquainted with all areas



The average Great Lakes ski area has fou rope tows, one cable tow or lift, and a max mum vertical rise of 242 feet. (Photo courtes of the Telemark Company, Hayward, Wis.

eported VTF capacity of cable tows and lifts as increased nearly 25 percent per year since 960. (Photo courtesy of the Michigan Tourist ouncil, Lansing, Mich.)

in their single-day market, and probably in their weekend market. This is substantiated by skiers ranking advertising low among reasons for choosing an area. Such services as eating and drinking facilities are also ineffective methods of differentiation, as indicated by analysis of service factors and reported skier motives (p. 24).

In summary, there appears to be moderate to high product differentiation. This again is consistent with the observed variety of tow and lift ticket prices.

Entry and Exit

Ease of entry to the industry determines how readily the number of ski areas can increase, thereby diminishing industry profits. Ease of exit determines how readily overcapacity can decrease, thus helping to restore industry profits.

Barriers to entering the Great Lakes skiing industry are low. Product differentiation such as "good" location of established ski areas can be a barrier, but this may be ignored if the entrant thinks there is, or will be, excess skier demand. Higher costs than those paid by industry members for equipment, and all other necessary inputs could stop entry. However, equipment and other necessary inputs are readily available in the open market at no cost disadvantage although existing areas might have some slight advantage in skilled personnel. The one item most mentioned as a barrier is the possible high cost or unavailability of capital funds.

As previously seen, long-term debt has been available to the ski industry (fig. 4). The apparent low profitability of ski-area operation has been noted in print for at least a decade so there seems no reason to believe funds will be relatively more expensive for today's skiing industry entrant than for yesterday's. Further, the amount needed to enter is not an insurmountable barrier. This is illustrated by 16 areas having average total assets of $59,100 (none greater than $100,000), positive cash flows, but not currently showing profits.

A final barrier to entry would occur if the cost structure required a very large share of the market to reach an efficient cost per skier. This barrier is probably not important because some ski areas with attendance as low as 4,000 are making profits, although the profits may be slightly lower than those from higher attendance areas.

Low entry barriers are consistent with the observed overcapacity, low average profits, and fairly high number of entrants.

Leaving the industry is probably difficult because there are not many alternative uses for ski-area equipment, buildings, and land. This makes it difficult to liquidate the remaining investment or use the assets to enter another industry. In fact, some area operators reported they would sell if only they could find a buyer. Moderately high barriers to exit are consistent with reports of areas bankrupt but still operating, as well as observed overcapacity and low profits.

Summary

The investment possibilities are generally poor, due to past low profits, the constant threat of overcapacity, and moderate returns in view of the high risks. The vacation market, in particular, is a poor investment due to the decreasing cost of travel and the attractiveness of western and European ski areas. The weekend market is only slightly better because the new entrant must cope with existing ski areas with established names, underutilization of tows and lifts on weekdays, and the threat of increasing competition from eastern and western areas. An urban-oriented, single-day ski area is the best investment possibility for three reasons: (1) its product is made different from others by location, (2) the high population density increases possibilities of utilizing capacity by special promotional activities (such as week-night schools), and (3) the lower number of ski areas available to any one skier allows greater market control. Although profits appear to be increasing there is no guarantee that they will continue to do so or that industry overcapacity problems have been resolved.

Factors Associated with Financial Success

Financial success was measured by the rate of return on total investment (ROR) calculated from income statements and balance sheets of 27 ski areas for which both statements were available (p. 40). The inclusion of areas was

therefore based on data availability rather than a sampling procedure. Stepwise multiple linear regressions were used to relate ROR to 15 factors.

VTF capacity was the single factor most highly related to financial success. Rate of return on investment increased sharply with VTF to a point, but then leveled off (fig. 5). Changes in VTF capacity accounted for only 21 percent of the changes in financial success.

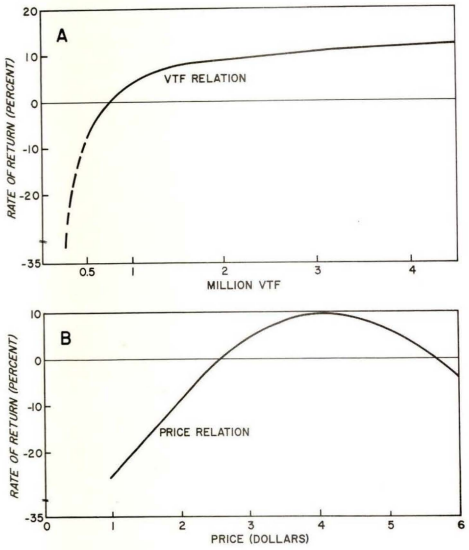


Figure 5.—Average relationship between VTF (A), average price (B) and rate of return for 27 ski areas. Solid line indicates range of independent variable data.

When VTF was deleted from the analysis the next best relationship was with average price.[7] Rate of return reached its highest when average price is just over $4.00, and then decreased as the average price rose (fig. 5). Changes in average price accounted for 36 percent of the changes in financial success, 15 percent more than VTF.

Even more of the changes in financial success were explained when ski areas were classified according to the price they charged. Areas with a price of more than $4.00 had a higher rate of return at lower VTF capacities, but their maximum rate of return was not as high as that for the $3.00 to $4.00 areas (fig. 6). Rate of return for the $3.00 to $4.00 class decreased after reaching a maximum, but tended to level off for the $4.00+ class.

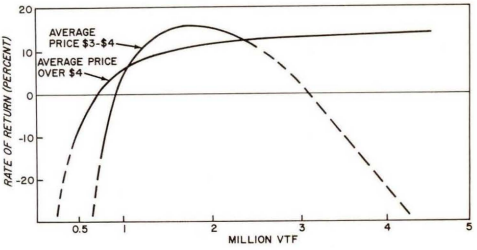


Figure 6.—Average relationship between VTF and rate of return when ski areas are classified by average price. Solid lines indicate range of independent variable data.

When only urban ski areas (those within 50 miles of a city of 50,000 or more people) were considered, several notable differences appeared (fig. 7).[8] First, rate of return increased with VTF to a maximum, and then decreased. Second, rate of return was highest at a lower price in the urban setting. Finally, the amount of snow on the ground (from Weather Bureau records) became associated with financial success for the first time. More than 90 percent of the changes in financial success were then explained by changes in VTF, average price, and amount of snow on the ground.

The analysis did not explain why the relationships were meaningful – it simply showed they existed for the 27 areas. Subject to the warnings on page 42 the following summary may be made:

[7] This is the weighted average price of tickets throughout the 1967-68 season, including day tickets, season passes, package plan income allocated to ticket revenues, etc.

[8] The curves were calculated by assigning two variables their average value and varying the value of the third.

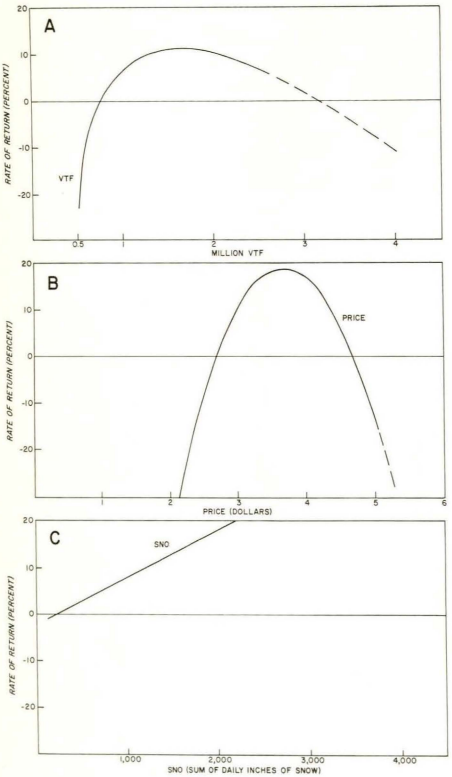


Figure 7.—Average relationships between VTF (A), average price (B), snow on the ground (C) and rate of return for urban ski areas. Solid lines indicate range of independent variable data.

1. The best recorded rate of return for the 27 areas was about 25 percent before Federal income tax. However, the average rate of return was much lower – possibly too low for the risks involved in ski industry investment.

2. Ski areas within 50 miles of a city of 50,000 or more people had a higher maximum rate of return than others; therefore, the distance from population centers should be considered when investing.

3. Rate of return varied with ticket price; therefore, each area should experiment to find its best price, starting at about $3.65 (1967-68 prices). Because this is an average price, weekend ticket prices can be higher. Rural areas may charge slightly higher prices.

4. Rate of return also varied with VTF capacity. About 1-2/3 million VTF might be the starting point for determining the best VTF for an area. Rural areas could have slightly more VTF capacity. Opening a second area rather than enlarging the present one should be considered if increased investment is planned.

Several points are important although not brought out by the analysis. First, there are few skiable days in a year and ski-area assets probably lie dormant more than two-thirds of the time. Uses for these assets on a year-round basis should be sought (Jackson 1969, p. 40).

Second, managerial ability has not been measured. But, it appears that, particularly in the smaller areas, ski area operators do not turn their full talents to management even during the season. Regardless of the reasons, this may result in failure to find the best solutions to ski-area problems.

Lack of managerial ability may be reflected in the lack of records to guide decisions. Many ski areas did not have the most basic accounting reports (and no records by cost center, such as restaurant, bar, ski rental, and slopes), nor did they even know their annual attendance. One operator responded, "We just count the money in the cash drawer at the end of the day. If there is more than we started with we are happy."

THE GREAT LAKES SKIER

Certain characteristics appear common to skiers in all regions. Skiers are predominantly a young group – 55 percent of the Great Lakes skiers are less than 23 years old. Comparison with age distributions from the eastern and western ski studies indicates that either the Great Lakes skier is younger or the national skier population is becoming younger (table 2). A younger national skier population is consistent with the apparent trend for skiers to have fewer years of education. Further, at least one survey of skiers in many States reported that average age is decreasing (Pitts 1968).

More than half the skiers in the Great Lakes region are less than 23 years old. (Photo courtesy of the Rib Mountain Ski Area, Wausau, Wis.)

kiers ranked quality of slopes as one of the imary reasons for skiing at a particular sort. (Photo courtesy of the Michigan Tour- Council, Lansing, Mich.)

A second general observation is that most skiers have been skiing only a few years. Throughout the United States one-fifth to one-third have been skiing 1 to 2 years and almost three-fourths have been skiing 8 years or less (table 2). The Great Lakes skier fits this description.

Table 2.—*Skier age, education, and years skied, by region*
(In percent of skier population)

Region	Skier age	Education beyond 12th grade	Years skied	
	13-18		1 or 2	8 or less
Great Lakes	37.0	54.8	27.8	75.0
Western[1/] (1964-65)	25.0	65.0	31.0	66.0
Eastern[2/] (1962-63)	19.6	83.8	20.0	70.0

1/ Source: Herrington (1967, p. 71, 78, 84).
2/ Source: Sno-Engineering (1965, p. 11, 43, 44).

About three-fourths of Great Lakes skiers report their occupation as either student or professional. The proportion of skiers who are students in the Great Lakes is much higher than in other regions, although students constitute the largest group of skiers in all regions.

The Great Lakes skier, like skiers nationwide, has a higher than average income. His median family income ($12,168) exceeds the median for the North Central States by more than $3,000 (Census Bureau 1966).[9]

Thus far the Great Lakes skier seems much like all other United States skiers. But he is different in some ways. For example, the resident Great Lakes skier travels farther than his western cousin, especially on weekend and vacation trips. The difference may be due to highway improvements in the years between the studies, or in the case of vacation trips, to the midwesterner traveling east or west to ski.

More importantly, the Great Lakes skier skis only half as many days as the western skier, and one-third as many as the eastern skier. Therefore, he has fewer opportunities to generate income for ski areas.

More than 80 percent of Great Lakes ski trips are single-day or weekend trips, indicating a limited market for vacation ski trips. Over 95 percent of all trips are by automobile or bus, indicating the importance of good roads to the Great Lakes ski industry.

Michigan residents accounted for 43 percent of the total days skied in the Great Lakes Region. In addition to accounting for more than 90 percent of the days skied in Michigan, they also accounted for two-thirds of those skied in Indiana, and one-fourth of those skied in Wisconsin. The Michigan skier, then, is an important element not only in his own State's market but in other States as well. The same holds true for the Wisconsin resident skiing in Illinois.

Skiers' Preferences

Day skiers rank proximity as the most important reason for skiing at a particular area, which helps explain the greater financial success of urban versus rural ski areas.

The physical quality of the ski slopes (not including snow quality) was ranked second by the day skier and first by skiers planning weekend or vacation trips. Cable facilities are necessary but clearly of lesser importance. The day skier next considers low ticket prices and the area's reputation with other skiers, while the weekend-vacation skier considers the area's reputation, the expected amount of crowding, and after-ski entertainment.

Skiers gave the above answers in response to questions about why they chose particular ski areas.

On the other hand, operators of ski areas were asked what factors limited attendance at their areas. Weather variables were ranked first by operators as limiting attendance. Inadequate tow and lift capacity and not enough skiable area, both of which relate to crowdedness, were ranked next. Inadequate service facilities and overnight accommodations were ranked fourth and fifth, followed by skier preference for cable

9 Median family income was calculated assuming an even distribution of skiers throughout the $10,000 to $14,999 income class.

versus rope facilities. It is interesting that operators ranked crowdedness variables higher than skiers did, and cable facilities lower.[10]

SPENDING AND ITS IMPACT

Great Lakes skiers spent an estimated $65 million on their sport in the 1968-69 season. More than 40 percent of this (an estimated $27 million) went for equipment, clothing, and other items purchased while not on a trip. Three-quarters of all skiers reported this type of purchase. On trips, however, the estimated average expenditure per skier per day was about $17; the amount increased from $12 for single-day trips through $22 for weekend trips, to $28 for vacation trips.

On the average, for all trips, the Great Lakes skier spends about 25 percent of his money on tow and lift tickets, 30 percent on transportation and meals, 20 percent on lodging and after-ski entertainment, 5 percent on equipment rental and repairs, and 5 percent on package plans. The remaining expenditure is on other items.

Ski areas, however, do not receive all skier expenditures – even those made while on a trip. Transportation expenditures go to someone else and the skier may also buy lodgings, meals, after-ski entertainment, and other items away from the ski area. The ski area can count on receiving as little as half of day-skier expenditures and only about a quarter of weekend and vacation expenditures. Attention to attractive food service, lodgings, and after-ski entertainment is important if increased sales to existing customers are the goal.

Available data on ski-area expenditures show wages and salaries are by far the largest single item. Goods sold in eating and drinking places are next, followed by snowmaking operating expenses, and then by goods sold in the ski shop (table 3). Not all ski areas reported complete data and the accuracy of these rankings is subject to qualifications.

Table 3.—*Selected annual expenditures per ski area, 1967-68 season*

Expenditure	Average per area	Areas in average
	Dollars	Number
Cost of goods sold:		
Eating and drinking place	13,900	66
Ski shop	7,300	45
Operating expenses:		
Snowmaking equipment	11,400	45
Tow and lift maintenance	4,700	91
Other:		
Advertising	4,300	81
Wages and salaries	27,600	96
Interest	4,500	15

The 89 ski areas that reported employment data employed a total of 2,755 people during the year, but 2,665 of these were seasonal. The seasonal employee averaged just over 4 man-days work per week and was paid an average of $1.90 an hour. An estimated 95 percent of all employees were local residents.

Those who look to ski areas to improve local economies want to sell more goods and services to outsiders (in this case, skiers entering, spending, and then leaving). They believe that the more money spent within the region, the better chance for creating additional jobs and opportunities for new investment. This is known as the "multiplier effect": the larger the "multiplier," the farther an expenditure goes before leaving the local economy. The degree to which the multiplier works depends, in part, on the structure of the local economy and the type of expenditures made. This is why statements about impact must be tied to particular local economies and why specific statements on economic impact are not made here.

How much of the Great Lakes skiers' expentures are likely to find their way into local, rural economies – those most likely to consider ski areas as an aid to growth?

10 The reader should use caution in interpreting these results. For example, the low price of tow and lift tickets may not attract a skier but possibly a high price will drive him away. Also, advertising may not convince a skier to attend a particular ski area, but it may be important to inform him of the days and hours the area is open or of events of special interest, such as discount evening ski schools. Finally, these results do not show why the skier goes skiing on a particular day, but why he goes to a particular ski area.

As already noted Great Lakes skiers in 1968-69 spent $27 million for equipment *while not on trips*. Similarly, only part of the $6.6 million spent on transportation found its way into local economies. Although 85 percent of the trips were by auto, local economies probably received only part of the gasoline expenditure.[11] They got little or nothing from other forms of transportation. Probably no more than a third or a half of the transportation expenditure aids the local economy. Subtracting $27 million and $3.3 million from $65 million leaves a maximum of 55 percent available for local economies.

This does not take into account those skiers who are local residents and do not bring in "new" money. If we assume a 100-mile radius for a local economy, and that skiing expenditures by residents would have been made locally on something else, probably only $16,500,000 of new money is contributed.[12]

Employment and Income

At least one man is required for each cable tow and two men for each lift. Most areas employ additional men for snowmaking and slope grooming. Fuel expenditures for snowmaking and tows and lifts probably have a small effect on local employment and personal income if motors are electric. However, purchase of fuel can cause an additional round of expenditure if the motors are diesel. Aside from labor, most maintenance expenditures are probably outside the local economy.

Common carrier transportation expenditures almost certainly have little local effect. Gasoline expenditures for private autos seem unlikely to create new jobs but may increase the income of the local service station owner and fuel distributor.

Meal expenditures can have several effects. Food service at the ski area can be anywhere from cafeteria style, requiring a few busboys and a short-order cook, to a formal dining room requiring waitresses and a chef who may be "imported" from outside the region. The expenditure for unprepared food can make an additional stop within the region if there is a local wholesaler, or it can leave the region immediately.

New restaurant-connected jobs and income may be created if weekend and vacation guests eat away from the ski area. On the other hand, this may simply result in fuller utilization of existing employees. Of course, the owner's income would presumably increase. A similar analysis applies to after-ski entertainment, although live entertainers are probably imported from outside the region. Lodging expenditures may be beneficial if they provide jobs for unskilled labor.

Equipment purchased on the ski trip provides jobs for salesmen but the dollars spent on it probably leave the region immediately to pay for the merchandise sold. Ski schools may import a director and possibly a few instructors. Part-time instructors may be local residents, thereby increasing income but not creating many new jobs.

Although the preceding speculative analysis indicates that ski areas do create jobs and have a generally favorable effect on income, they are not by any means a cure-all for local economic problems. And, in view of the other economic deficiencies already mentioned, particularly in the rural setting, all possible alternatives should be sought out and evaluated before choosing a ski area as a means of relieving a depressed regional economy. Ski-area investment for regional development may be sound in some cases: for example, if a region is particularly well endowed with snow and skiable terrain and already has a well established summer recreation industry that winter activity could supplement.

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11 Respondents' expenditure estimates were used for all transportation costs except auto. Auto cost was estimated at 4.083 cents per mile average running cost (gasoline, oil, normal preventative and repair maintenance, washing, greasing, and tires). (Slocum Publishing Company 1968.)

12 The average Great Lakes skier skis 4.9 days in the study area but 3.4 of these are single-day trips. About 75 percent of the single-day skiers come from within a 100-mile radius of the ski area. Now, (25 percent x 3.4 days x $10.16/day + 1.1 days x $18.07/day + 0.4 days x $22.19/day) x 349,100 skiers = $13,100,000 + $3,300,000 transportation = $16,400,000.

SUMMARY

Financial information available for this study indicates that private investment in new ski areas is not particularly profitable, although exceptions do exist. The future may seem brighter because attendance and profits have shown an upward trend, but the susceptibility of the industry to overcapacity and its dependency on the weather create enough risk to raise serious doubt that current average returns are high enough.

Should investment be made in existing ski areas? There are several reasons why this might be prudent. An operator may profitably increase VTF, as indicated in the analysis of factors affecting financial success. He may, of course, replace wornout equipment or upgrade his tows and lifts. Or he may expand his whole operation and try to promote off-season use of his ski area.

This study indicates low returns to local economies, implying public investment for their relief should be made cautiously. If we assume that the public may invest, either to help local economies or to supply recreation activities, there are two important points to be considered. First, the amount of overcapacity in the region should be examined before investing funds or land for a new ski area or increasing the capacity at an existing one. Care must be taken not to create so much overcapacity that either the new or the old ski areas, or both, are unprofitable. Second, it may be better to give higher priority to assisting areas already operating if it will help them became more profitable, rather than create new areas that dilute profits.

The preceding analyses were intended to highlight items likely to be of interest to most investors. More detailed information can be found in the Appendix.

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APPENDIX

The rows and columns of the tables may not add to their totals due to rounding errors and the presence of a dash (—) in a table indicates the information was not available or no answer was possible.

Ski Area Operator Survey, 1967-68 (Tables 4-20)

State and commercial directories listed 192 ski areas in the study area but 15 of these were excluded from the study because they were not open to the public, made no charge for skiing, or did not provide tows or lifts. In addition, nine other ski areas were out of business. Two area operators refused interviews and 19 could not be found at the end of the season. The following number of interviews was obtained in each State (noncontacts are areas that either refused to be interviewed or could not be contacted):

State	*Original number of areas*	*Noncontacts*	*Interviews obtained*
Illinois	7	0	7
Indiana	4	0	4
Michigan	73	13	60
Minnesota	34	0	34
Wisconsin	50	8	42
Total	168	21	147

Some operators did not answer all questions, either because they didn't have the answers or considered them confidential. In addition, some areas were not open during the 1967-68 season, so their information was not used in some tabulations. The number of ski areas in each tabulation is indicated.

Table 4.—*Number of visits reported by ski area, by State and ski season*
(In thousands)

State	1967-1968	1966-1967	1965-1966	1964-1965	1963-1964	1962-1963	1961-1962	1960-1961
Michigan and Indiana	881.6	918.5	691.7	653.0	593.2	488.1	356.8	273.0
Minnesota	387.0	420.9	274.6	219.6	139.5	98.9	68.8	61.5
Wisconsin and Illinois	400.7	438.5	284.2	293.6	236.4	230.4	183.8	112.7
Total	1,669.3	1,777.9	1,250.5	1,166.2	969.1	817.4	609.4	447.2
Number of areas reporting	117	117	109	102	94	92	86	85

Table 5.—*Estimated number of ski areas and visits, by State and ski season*

State	1967-1968	1966-1967	1965-1966	1964-1965	1963-1964	1962-1963	1961-1962	1960-1961
NUMBER OF SKI AREAS								
Michigan and Indiana	71	71	73	75	68	60	54	49
Minnesota	30	34	31	30	28	25	24	23
Wisconsin and Illinois	47	54	55	47	46	47	46	40
Total	148	159	159	152	142	132	124	112
THOUSANDS OF VISITS								
Michigan and Indiana	1,254	1,322	1,011	1,011	874	705	515	383
Minnesota	459	494	345	321	232	179	130	106
Wisconsin and Illinois	605	672	513	510	388	357	284	180
Total	2,318	2,488	1,866	1,842	1,494	1,241	930	669

Table 6.—*Number and VTF capacity of reporting ski areas, by season and VTF size class*

Season	Total		Rope only		Combination rope and cable							
					Size class of ski area (rated in VTF)							
					Less than 300 M		300 M to 699 M		700 M to 1,499 M		1,500 M or more	
	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF
1967-1968	140	155.5	69	48.2	2	0.2	14	7.4	30	32.6	25	67.1
1966-1967	142	148.7	71	48.8	3	.5	17	9.2	29	31.1	22	59.1
1965-1966	139	138.2	71	42.3	3	.5	16	8.6	27	29.5	22	57.3
1964-1965	132	124.2	65	39.3	5	.9	16	8.2	28	29.9	18	45.9
1963-1964	122	110.2	61	34.5	6	1.2	14	7.5	26	27.8	15	39.2
1962-1963	114	95.3	57	30.6	6	1.2	16	7.9	25	27.1	10	28.5
1961-1962	108	80.3	53	26.5	6	1.1	19	9.2	21	20.0	9	23.5
1960-1961	92	64.3	47	22.5	11	2.2	13	6.1	13	14.4	8	19.1

Table 7.—*Average annual compound percentage of increase in visits and VTF capacity, by State, 1960-61 to 1967-68*

State	Visits		VTF capacity	
	Reported	Estimated total	Total	Cable only
Michigan and Indiana	18.2	18.5	14.4	21.1
Minnesota	30.1	23.3	19.4	43.2
Wisconsin and Illinois	19.9	18.9	10.9	23.6
Total	20.7	19.4	13.4	24.2

Table 8.—*Number and VTF capacity of reporting ski areas, by season and State*

Season	Total		Illinois		Indiana		Michigan		Minnesota		Wisconsin	
	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF
1967-1968	140	155.5	5	3.0	3	2.7	60	63.4	32	38.2	40	48.2
1966-1967	142	148.7	5	3.0	3	2.7	59	59.4	33	36.9	42	46.7
1965-1966	139	138.2	5	3.0	3	2.7	59	58.1	32	29.5	40	44.9
1964-1965	132	124.2	4	2.8	4	3.7	58	50.6	29	25.1	37	42.0
1963-1964	122	110.2	4	2.6	4	3.4	54	44.1	25	20.2	35	39.9
1962-1963	114	95.3	4	2.6	2	1.8	51	37.0	23	16.9	34	37.0
1961-1962	106	80.3	4	2.6	--	--	48	30.6	21	13.1	33	34.0
1960-1961	92	64.3	3	2.4	--	--	42	25.8	20	11.0	27	25.1

Table 9.—*Number and VTF capacity of reporting ski areas, cable tows and lifts only, by season and State* [1]

Season	Total		Illinois		Indiana		Michigan		Minnesota		Wisconsin	
	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF
1967-1968	71	47.3	2	0.7	1	0.2	33	26.6	17	8.6	18	11.2
1966-1967	71	41.9	2	.7	1	.2	32	23.1	18	8.4	18	9.5
1965-1966	68	40.9	2	.7	1	.2	32	22.7	17	8.0	16	9.3
1964-1965	67	34.1	2	.7	2	.7	32	19.4	15	5.4	16	7.9
1963-1964	61	26.1	2	.7	2	.7	28	14.9	14	3.8	15	6.0
1962-1963	57	21.1	2	.7	1	.6	26	12.4	13	2.0	15	5.4
1961-1962	53	15.0	2	.7	--	--	24	8.5	12	1.4	15	4.4
1960-1961	45	10.4	2	.6	--	--	22	7.0	11	.7	10	2.1

1/ Capacities are for cable facilities only. If an area has both rope and cable facilities, the rope tow capacity is excluded.

Table 10.—*Profile of ski areas showing average values of selected characteristics, by VTF size class, 1967-68 season*

Characteristic	Number of areas in sample	Unit of measure	Total	Rope only	Combination rope and cable: Size class of ski area (rated in VTF)			
					Less than 300 M	300 M to 699 M	700 M to 1,499 M	1,500 M or more
All skier visits	117	Number	14,300	4,700	500	9,400	28,800	31,900
Weekend and holiday skier visits	117	Number	9,200	2,800	500	7,200	17,200	22,600
Day ticket cost	107	Dollars	2.85	2.02	4.00	3.52	3.84	3.84
Rope tows	147	Number	3.8	3.6	1.0	2.9	4.4	4.6
Cable tows and lifts	147	Number	1.0	--	1.0	1.4	2.1	2.7
Capacity of cable tows and lifts	147	M VTF/hr.	321.5	--	97.1	276.1	538.2	1,082.2
Slope grooming in season	123	Man-days	58.5	31.2	--	45.8	77.0	139.7
Snowmaking guns[1]	83	Number	15.7	9.3	4.0	10.3	18.0	25.3
Novice ski slopes	144	Number	1.9	1.5	1.0	1.7	2.3	2.8
	141	Acres	7.1	3.9	2.4	6.2	8.5	15.0
Intermediate ski slopes	142	Number	2.8	2.3	1.5	2.9	3.0	3.9
	142	Acres	19.4	10.5	12.4	21.1	27.4	36.2
Advanced ski slopes	143	Number	1.9	1.2	1.5	2.0	2.2	3.3
	129	Acres	11.8	6.0	19.6	10.0	17.3	19.6
Maximum vertical rise	144	Feet	241.7	183.2	197.5	246.7	287.6	365.3
Maximum slope length	141	Feet	1,800	1,200	2,100	2,600	2,400	2,700
Restaurant seats[2]	143	Number	163.3	90.0	50.0	110.4	217.6	354.1
Beds lodging[2]	144	Number	27.4	4.6	--	10.8	42.0	87.9
Bar capacity[2]	138	Persons	67.5	28.2	--	47.1	100.7	163.9
Children in organized ski group	136	Number	699	384	100	154	1,285	1,490
Certified ski instructors	145	Number	2.9	1.1	1.0	2.1	4.8	6.3
Advertising expenditure	112	Dollars	3,093	780	100	1,290	6,548	7,594
Days in skiing season	127	Number	75.3	64.1	70.0	78.0	82.4	91.0
Skiable days in skiing season	143	Number	47.8	27.7	10.0	48.2	75.9	75.6

1/ Average only for ski areas that make snow.
2/ Includes facilities at ski area and those within walking distance.

Table 11.—*Number and VTF capacity of reporting ski areas, by State and VTF size class, 1967-68 season*

State	Total		Rope only		Combination rope and cable: Size class of ski area (rated in VTF)									
					Total all combinations		Less than 300 M		300 M to 699 M		700 M to 1,499 M		1,500 M or more	
	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF	No. of areas	Million VTF
Illinois	5	3.0	3	0.7	2	2.3	--	--	1	0.5	--	--	1	1.8
Indiana	3	2.7	2	1.7	1	1.0	--	--	--	--	1	1.0	--	--
Michigan	60	63.4	27	17.1	33	46.4	1	0.1	5	2.8	16	17.2	11	26.3
Minnesota	32	38.2	15	15.7	17	22.5	--	--	4	2.1	7	7.4	6	13.0
Wisconsin	40	48.2	22	13.0	18	35.2	1	.1	4	2.1	6	7.0	7	26.0
Total	140	155.5	69	48.2	71	107.3	2	.2	14	7.4	30	32.6	25	67.1

Table 12.—*Use of tow and lift capacity, by weekend-holiday and weekday, 1967-68 season*[1]

Use	Total			Rope-only areas			Combination rope and cable areas		
	Number of visits		Capacity used	Number of visits		Capacity used	Number of visits		Capacity used
	Actual	Potential		Actual	Potential		Actual	Potential	
	Thousands	Thousands	Percent	Thousands	Thousands	Percent	Thousands	Thousands	Percent
75-DAY SEASON									
Weekend-holiday	1,073.1	2,233.1	48.1	180.1	717.5	25.1	893.0	1,515.6	58.9
Weekday	596.2	3,349.8	17.8	124.7	1,076.3	11.6	471.5	2,273.5	20.7
Total	1,669.3	5,582.9	29.9	304.8	1,793.8	17.0	1,364.5	3,789.1	36.0
48-DAY SEASON									
Weekend-holiday	1,073.1	1,339.8	80.1	180.1	430.5	41.8	893.0	909.3	98.2
Weekday	596.2	2,232.9	26.7	124.7	717.4	17.4	471.5	1,515.5	31.1
Total	1,669.3	3,572.7	46.7	304.8	1,147.9	26.6	1,364.5	2,424.8	56.3

1/ See section on Estimating Utilization of Ski-Area Capacity for difference between 75- and 48-day season.

Table 13.—*Thousands of visits reported by ski areas, by State and VTF size class, 1967-68 season*

State	Total	Rope only	Combination rope and cable				
			Total all combinations	Size class of ski area (rated in VTF)			
				Less than 300 M	300 M to 699 M	700 M to 1,499 M	1,500 M or more
Michigan and Indiana	881.6	136.7	744.9	1.0	40.9	499.6	243.4
Minnesota	387.0	79.5	307.5	--	45.5	157.7	104.3
Wisconsin and Illinois	400.7	70.6	330.1	--	25.8	45.3	259.0
Total	1,669.3	286.8	1,382.5	1.0	112.2	662.6	606.7
Number of areas reporting	117	61	56	2	12	23	19

Table 14.—*Estimated total visits to ski areas, by State and VTF size class, 1967-68 season (Thousands of visits)*

State	Total	Rope only	Combination rope and cable				
			Total all combinations	Size class of ski area (rated in VTF)			
				Less than 300 M	300 M to 699 M	700 M to 1,499 M	1,500 M or more
Michigan and Indiana	1,254.1	150.0	1,104.1	1.0	60.0	616.9	426.2
Minnesota	459.3	100.7	358.6	--	45.5	170.4	142.7
Wisconsin and Illinois	604.6	103.8	500.8	--	40.9	55.1	404.8
Total	2,318.0	354.5	1,963.5	1.0	146.4	842.4	973.7
Estimated number of areas open	148	65	83	2	15	33	33

Table 15.—*Employment and wages by size class of ski area, 1967-68 season*

Size class[1]	Areas reporting	Yearly		Weekly	
		Total	Average per area	Total	Average per area
Rated in VTF	Number				
EMPLOYMENT (MAN-HOURS)					
Rope only	37	174,540	4,720	15,560	420
300 M to 699 M	8	42,090	5,260	3,570	450
700 M to 1,499 M	26	566,270	21,400	40,230	1,550
1,500 M or more	18	465,540	25,860	30,050	1,670
Total	89	1,248,440	14,030	89,410	1,000
WAGES (DOLLARS)					
Rope only	37	303,440	8,200	27,750	750
300 M to 699 M	8	73,940	9,240	6,140	760
700 M to 1,499 M	26	1,149,100	44,190	77,020	2,960
1,500 M or more	18	1,094,860	60,820	59,400	3,300
Total	89	2,621,340	29,450	170,310	1,913

1/ The "less than 300 M" VTF size class was omitted because less than three ski areas reported.

Table 16.—*Number of different employees, mean man-days employment, and mean hourly wage, by VTF size class, 1967-68 season*

Ski-area size class[1] (rated in VTF)	Areas reporting	Yearly total			Ski season		
		Persons employed	Time employed	Mean hourly wage	Persons employed	Time employed	Mean hourly wage
	Number	Number	Man-days/year[2]	Dollars	Number	Man-days/week[2]	Dollars
Rope only	37	691	31.6	1.75	644	3.0	1.78
300 M to 699 M	8	109	48.2	1.76	103	4.3	1.72
700 M to 1,499 M	26	1,090	64.9	2.03	1,067	4.7	1.91
1,500 M or more	18	865	67.2	2.35	851	4.4	1.98
Total	89	2,755	56.6	2.10	2,665	4.2	1.90

1/ The "less than 300 M" VTF size class was omitted because less than three ski areas reported.
2/ Based on an 8-hour man-day.

Table 17.—*Annual reported ski area expenditures by VTF size class, 1967-68 season*

Expenditure	Total		Rope only		Combination rope and cable areas					
					Ski-area size class[1] (rated in VTF)					
					300 M to 699 M		700 M to 1,499 M		1,500 M or more	
	Areas reporting	Expenditure	Areas reporting	Expenditure	Areas reporting	Expenditure	Areas reporting	Expenditure	Areas reporting	Expenditure
	Number	Thousand dollars	Number	Thousand dollars	Number	Thousand dollars	Number	Thousand dollars	Number	Thousand dollars
Cost of goods sold:										
Eating and drinking	66	914.3	30	273.5	7	97.9	17	262.9	12	280.0
Ski shop	45	326.4	13	72.2	4	10.6	16	80.3	12	163.3
Operating expenses:										
Snowmaking equipment	45	511.2	15	75.9	4	15.3	14	211.2	12	208.8
Tow and lift maintenance	91	430.0	52	54.5	6	8.4	18	134.9	15	232.2
Other:										
Advertising	81	346.4	31	49.5	10	12.9	23	150.6	17	133.2
Wages and salaries	96	2,646.0	44	344.1	8	73.9	27	1,163.1	17	1,064.9

1/ The "less than 300 M" VTF size class was omitted because less than three ski areas reported.

Table 18.—*Areas reporting use of snowmaking equipment, by State and VTF size class, 1967-68 season*

State	Total		Rope only		Combination rope and cable areas							
					Ski-area size class (rated in VTF)							
					Less than 300 M		300 M to 699 M		700 M to 1,499 M		1,500 M or more	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Illinois	5	100	3	100	0	--	1	100	0	--	1	100
Indiana	3	100	2	100	0	--	0	--	1	100	0	--
Michigan	33	55	8	30	--	--	3	60	13	81	9	82
Minnesota	17	53	4	27	0	--	3	75	5	71	4	67
Wisconsin	19	48	6	27	1	100	3	75	3	50	6	86
Total	77	55	23	33	1	50	10	71	22	73	20	80
Number of areas reporting	140	--	69	--	2	--	14	--	30	--	25	--

Table 19.—*Percentage of ski areas reporting night skiing by State and VTF size class, 1967-68 season*

State	Total				Rope only				Combination rope and cable areas							
									Ski-area size class (rated in VTF)							
									Less than 300 M		300 M to 699 M		700 M to 1,499 M		1,500 M or more	
	Weekend nights[1]	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights[1]	Weekend nights	One or more other nights
Illinois	80	80	100	100	--	--	100	100	--	--	0	0				
Indiana	33	33	0	0	--	--	--	--	100	100	--	--				
Michigan	43	45	41	48	0	0	60	40	56	50	27	36				
Minnesota	38	50	27	40	--	--	25	50	57	71	50	50				
Wisconsin	35	38	32	23	0	0	25	50	67	83	29	43				
Total	41	45	36	39	0	0	43	50	60	63	32	40				
Number of areas reporting	140	140	69	69	2	2	14	14	30	30	25	25				

1/ Friday, Saturday, and/or Sunday nights.

Table 20.—*Factors reported by 147 ski-area operators as inhibiting attendance*

Factor	Total all areas				
	Number of times factor was reported			Total times reported[1]	
	1st	2nd	3rd	Number	Percent
No limiting factors	8	--	--	8	1.8
Inadequate tow and lift capacity	17	12	4	33	7.5
Inadequate skiable area	12	9	2	23	5.2
Inadequate overnight accommodations	10	6	3	19	4.3
Skier prefers cable tows and lifts	4	5	2	11	2.5
Other inadequate base facilities	11	9	1	21	4.8
Poor weather, lack of snow	47	14	7	68	15.4
Other[2]	36	37	27	100	22.7
Nonresponse	2	55	101	158	35.8
Total	147	147	147	441	100.0

1/ Total times reported is the sum of the number of times the factor was mentioned among the first three factors mentioned.

2/ Any factor included in the "other" category is less than 2.5 percent of the total response.

Skier Survey, 1968-69 (Tables 21-46)

A total of 2,350 usable skier questionnaires were obtained. Some questions were unanswered, as in the case of the area operators. If another sample of skiers was taken we would not expect to obtain precisely the same answer we did this time. Standard errors indicate how different the answers might be and are calculated for tables 21, 30, and 33. The skier survey is, of course, subject to all the other types of survey error.

Wherever possible a weighted response rate is given in the skier table. A 100 percent weighted response rate is the equivalent of all 349,100 skiers' answers (or all 2,350 questionnaires) entering the table, a 90 percent rate is the same as 314,100 (.90 x 349,100) skiers' answers entering the table, and so on.

A distinction can be made between the Great Lakes skier, who is anyone who *skied* in the five study area States, and a resident skier, who is a Great Lakes skier *residing* in one of them. Further, statements can be made about resident skiers by their State of residence if it is assumed all that State's skiers skied at least once in any one of the five study area States (and therefore had a known probability of entering the sample). It is unlikely that all skiers in a nonstudy area State skied at least once in the study area; therefore, statements should not be made about them. For example, statements may be made about Ohio residents who ski in the study area and study area residents who ski in Ohio, but not the skier or skiing in Ohio.

Question 7 of the Midwestern Skier Questionnaire

(Copies of the survey questionnaires may be obtained by writing: North Central Forest Experiment Station, Folwell Avenue, St. Paul, Minnesota 55101.)

7. Which of the following factors determine WHY YOU SKI AT ONE SKI AREA INSTEAD OF ANOTHER? Indicate as many factors as are important in reaching a decision by entering the number 1 beside the most important factor, 2 beside the second most important, 3 beside the next most important, etc., for the types of ski trips listed.

a. Single day ski trip.

b. Weekend or vacation ski trip.

SINGLE DAY SKI TRIP		WEEKEND OR VACATION SKI TRIP
.....	Advertising about the ski area which you have seen	.....
.....	The reputation of the ski area and the surrounding region for after skiing (apres ski) activity.	.....
.....	Presence of cable tow and lift facilities instead of only rope tows at the ski area.	.....
.....	The closeness of the ski area to your residence	.....
.....	The number of slopes and trails including their length, vertical drop, variability, challenge to your skiing skill, and general interest while skiing.	.....
.....	The relatively low price of tow and lift tickets	.....
.....	The physical layout and general appearance of the ski lodge including the amount and quality of eating, drinking, and/or lodging facilities.	.....
.....	The number of other ski areas within one half hour's drive of the ski area you are visiting.	.....
.....	The length of lift and tow lines and the amount of congestion on slopes which you expect to find at the ski area.	.....
.....	The ski area's reputation among fellow skiers as a "good" place to ski.	.....
.....	Other (specify)	.....
.....	Other (specify)	.....

Table 21.—*Estimated number of skiers and percentage of State population using ski areas, by residence, 1968-69 season*[1]

Residence	Estimated number of skiers	State population[2]	Percent skiers	Standard error
	Thousands	Thousands		Thousands
Illinois	54.1	11,047	0.5	36.7
Indiana	3.6	5,118	.1	1.3
Michigan	128.5	8,766	1.5	71.2
Minnesota	78.7	3,700	2.1	32.9
Wisconsin	50.1	4,233	1.2	19.8
Study area total	315.0	32,864	1.0	--
Ohio	8.6	(3/)	--	8.0
Iowa, South Dakota, or North Dakota	6.0	(3/)	--	3.7
All other U.S.	11.1	(3/)	--	5.7
Non-U.S.[4]	8.4	(3/)	--	3.6
Total	349.1	(3/)	--	102.6

1/ Weighted response rate 100 percent.
2/ State population as of July 1, 1968. Source: Census Bureau. Current population report, population estimates and projections. Ser. P-25 (430): p. 2. 1968.
3/ See section on Skier Survey.
4/ Primarily Canadian.

Table 22.—*Percentage of skiers, by age class and residence, 1968-69 season*[1]

Residence	Age class							Total
	13-18	19-22	23-30	31-40	41-50	Over 50	No response	
Illinois	29.6	17.7	26.8	11.9	10.9	2.5	0.6	100
Indiana	9.8	26.1	17.4	12.7	32.0	--	2.0	100
Michigan	51.2	13.5	16.0	10.4	6.0	2.2	.8	100
Minnesota	37.1	19.6	19.0	13.2	7.2	2.5	1.4	100
Ohio	7.7	19.7	31.7	19.3	19.2	--	2.5	100
Wisconsin	28.2	16.7	19.8	19.7	9.8	3.6	2.2	100
Iowa, South Dakota, and North Dakota	14.4	25.8	20.6	18.8	6.9	--	13.5	100
All other U.S.	9.0	56.5	19.1	1.6	3.6	.7	9.5	100
Non-U.S.[2]	13.2	25.1	37.6	8.7	12.8	--	2.5	100
Total	37.0	18.1	20.0	12.7	8.2	2.3	1.7	100

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 23.—*Average days skied*[1] *per skier, by residence, type of trip*[2] *and location of ski area,*[3] *1968-69 season*[4]

Residence	Total			Single day			Weekend			Vacation		
	Total	In home State[2]	In rest of study area[3]	Out of study area[3]	In home State[2]	In rest of study area[3]	Out of study area[3]	In home State[2]	In rest of study area[3]	Out of study area[3]	In home State[2]	In rest of study area[3]	Out of study area[3]
Illinois	5.1	1.0	3.1	1.0	0.9	1.9	0.0	0.1	0.8	0.0	0.0	0.4	1.0
Indiana	5.8	.9	4.5	.4	.8	1.0	.0	.0	1.6	.0	.0	1.9	.4
Michigan	5.6	5.1	.1	.4	3.6	.1	.0	1.1	.0	.0	.4	.0	.4
Minnesota	6.5	4.0	1.6	.9	3.3	.9	.0	.6	.5	.0	.1	.1	.8
Ohio	6.9	1.3	3.3	2.3	1.3	.5	.4	.0	1.8	1.1	.0	1.0	.9
Wisconsin	6.1	3.5	1.6	1.0	2.9	.5	.2	.5	.8	.0	.1	.3	.8
Iowa, South Dakota, and North Dakota	6.4	1.5	3.4	1.5	1.5	1.5	.1	.0	1.6	.0	.0	.3	1.4
All other U.S.	2.1	.0	2.1	.0	.0	1.5	.0	.0	.2	.0	.0	.4	.0
Non-U.S.[5]	4.5	.6	2.6	1.3	.0	.8	1.1	.6	.8	.0	.0	1.0	.2
Total	5.7	3.5	1.4	.8	2.7	.7	.1	.6	.5	.1	.2	.2	.7

1/ Zero days skied was considered a legitimate answer in any category within a State of residence as long as the person had skied 1 or more days in any one category. This means the averages within a State of residence are additive. For example, the average Illinois skier skied 5.1 days, of which 2.8 were single-day trips.
2/ On single-day trips the skier returned home each night, on weekend trips he stayed overnight 1 to 3 nights, and on vacation trips he stayed overnight 4 or more nights.
3/ "In home State" are days skied in State of residency, "in rest of study area" are days skied in other States in study area but not in State of residency, and "out of study area" are days skied in locations outside the study area.
4/ Weighted response rate 97 percent.
5/ Primarily Canadian.

Table 24.—*Percentage of skiers taking various combinations of trips, by residence, 1968-69 season*[1]

Residence	Day only	Weekend only	Day and weekend	Vacation only	Day and vacation	Weekend and vacation	Day and weekend vacation	Nonresponse	Total
Illinois	58.7	14.1	16.6	2.6	2.8	0.8	1.4	3.1	100
Indiana	21.9	24.6	13.5	22.6	5.3	2.5	9.7	--	100
Michigan	62.9	13.8	14.4	1.5	1.6	1.4	2.2	2.3	100
Minnesota	60.0	7.6	24.0	2.1	1.8	.3	1.8	2.4	100
Ohio	4.1	63.2	9.4	15.6	.3	1.9	.8	4.7	100
Wisconsin	57.0	16.2	19.0	1.6	2.7	1.0	2.1	.6	100
Iowa, South Dakota, and North Dakota	42.4	22.7	29.9	--	3.1	.9	.4	.6	100
All other U.S.	65.9	8.9	1.9	9.0	1.6	--	--	12.6	100
Non-U.S.[2]	40.7	35.2	1.3	15.8	1.4	.6	.9	4.0	100
Total	58.1	14.6	17.0	3.0	2.0	.9	1.9	2.6	100

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 25.—*Percentage of days skied in different States by State of skier residence, 1968-69 season*[1]

Residence	State of ski area location							Total
	Illinois	Indiana	Michigan	Minnesota	Ohio	Wisconsin	Other	
Illinois	19.5	0.3	0.4	0.2	0.0	0.3	8.5	3.4
Indiana	.9	14.9	.0	.0	.0	.0	.0	.3
Michigan	17.8	66.7	90.6	6.4	45.7	24.6	16.2	43.0
Minnesota	.4	.0	1.0	61.5	.0	2.5	22.6	17.9
Ohio	.3	.5	.1	.0	19.0	.0	.0	.6
Wisconsin	40.7	10.5	.8	17.5	.4	57.1	10.7	19.8
Iowa, South Dakota, and North Dakota	.0	.0	.0	.1	.0	.0	7.9	.5
All other U.S.	19.6	7.1	5.8	13.9	32.6	15.4	29.8	13.4
Non-U.S.[2]	.9	.0	1.4	.4	2.3	.1	4.2	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Weighted response rate not available.
2/ Primarily Canadian.

Table 26.—*Percentage of skiers first skiing in indicated season, 1968-69 season*[1]

Season first skied	Percentage	Accumulative percentage
1968-1969	13.8	13.8
1967-1968	14.0	27.8
1966-1967	10.2	38.0
1965-1966	10.3	48.3
1964-1965	7.7	56.0
1963-1964	6.9	62.9
1962-1963	5.3	68.2
1961-1962	6.8	75.0
1960-1961	2.2	77.2
1959-1960	3.5	80.7
1958-1959	2.5	83.2
1957-1958	2.5	85.7
1956-1957	1.3	87.0
1955-1956	1.5	88.5
1954-1955 and earlier	8.5	97.0
No response	3.0	100.0

1/ Weighted response rate 100 percent.

Table 27.—*Motives for choosing ski areas for single-day trips, 1968-69 season*[1]
(In percent)

Motive[2]	Importance of motive					
	First	Second	Third	Fourth	Fifth	Sum of 1-3
Closeness to residence	44.7	15.9	11.4	6.5	4.6	72.0
Physical quality of slopes	26.9	20.5	14.1	7.8	3.1	61.5
Presence of cable facilities	5.9	17.2	16.1	14.1	6.5	39.2
Low price of tow and lift tickets	3.5	13.8	13.2	7.0	7.2	30.5
Area's reputation with skiers	6.3	7.9	9.6	7.6	9.0	23.8
Expected amount of crowding	2.5	7.9	11.7	9.1	8.6	22.1
Reputation for after-ski entertainment	1.4	4.8	4.3	4.6	5.4	10.5
Other	5.6	3.1	1.3	.6	.4	10.0
Advertising	1.1	1.5	3.8	3.7	6.7	6.4
On-site eating, drinking, and/or lodging facilities	.6	2.6	2.8	4.7	7.2	6.0
Number of other ski areas in vicinity	1.4	1.2	1.7	2.4	1.9	4.3
No motive mentioned	--	3.6	10.0	31.9	39.4	13.6
Total responding	100.0	100.0	100.0	100.0	100.0	300.0

1/ Weighted response rate 62 percent.
2/ See question 7 for a full statement of the motive.

Table 28.—*Motives for choosing ski areas for weekend or vacation trips, 1968-69 season*[1]
(In percent)

Motive[2]	Importance of motive					
	First	Second	Third	Fourth	Fifth	Sum of 1-3
Physical quality of slopes	54.5	17.0	6.5	6.9	3.2	78.0
Presence of cable facilities	4.4	19.2	19.6	9.9	6.2	43.2
Area's reputation with skiers	13.9	9.4	7.4	9.7	5.8	30.7
Expected amount of crowding	1.8	10.8	16.6	11.5	7.9	29.2
Reputation for after-ski entertainment	5.6	12.2	8.3	4.8	8.2	26.1
On-site eating, drinking, and/or lodging facilities	2.0	9.5	9.3	8.2	8.1	20.8
Advertising	5.5	4.2	5.8	4.8	4.2	15.5
Closeness to residence	5.3	4.9	5.2	6.7	5.8	15.4
Low price of tow and lift tickets	1.8	3.2	9.1	6.1	8.8	14.1
Number of other ski areas in vicinity	.9	5.2	4.1	4.9	5.0	10.2
Other	4.3	1.8	1.7	1.0	.9	7.8
No motive mentioned	--	2.6	6.4	25.5	35.9	9.0
Total responding	100.0	100.0	100.0	100.0	100.0	300.0

1/ Weighted response rate 35 percent.
2/ See question 7 for a full statement of the motive.

Table 29.—*Increasing winter sports participation due to snowmobiling, by residence, 1968-69 season*[1]

Residence	Percent of skiers reporting increase	Percent of skiers not responding	Mean days per year increase
Illinois	6.7	0.7	7.2
Indiana	14.2	1.5	4.6
Michigan	27.0	1.4	17.1
Minnesota	20.8	2.3	17.6
Ohio	3.3	.6	10.0
Wisconsin	21.2	1.4	6.7
Iowa, South Dakota, and North Dakota	22.5	.7	11.7
All other U.S.	.9	2.9	5.0
Non-U.S.[2]	8.9	4.0	16.7
Total	19.6	1.6	14.9

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 30.—*Total skier expenditure, by item and residence, 1968-69 season*[1]

(Thousands of dollars)

Item	Residence									Total
	Illinois	Indiana	Michigan	Minnesota	Ohio	Wisconsin	Iowa, South Dakota, North Dakota	All other: U.S.	Non-U.S.	
Transportation	1,375	69	2,044	1,437	273	943	174	136	109	6,563
Lodging	1,162	112	1,478	1,157	244	556	113	29	151	5,002
Meals	1,150	130	2,237	1,562	231	845	177	83	183	6,598
Equipment rental	382	29	388	209	140	169	72	60	53	1,501
After ski entertainment	666	74	1,238	781	171	433	115	51	63	3,591
Package plans	676	110	547	398	151	314	34	0	5	2,235
Ski lessons	168	32	274	189	43	87	30	5	14	842
Equipment purchased on trip	446	84	735	350	50	323	60	25	6	2,079
Tow and lift tickets	1,231	83	3,166	2,330	308	1,228	166	105	162	8,779
Other expenses on trip	219	39	292	293	44	112	28	32	27	1,085
Equipment purchased not on trip	3,757	510	10,673	6,194	841	3,791	433	339	507	27,045
Total	11,232	1,272	23,072	14,900	2,496	8,801	1,402	865	1,280	65,320

1/ An overall weighted response rate is not stated because transportation and other expenditures were estimated separately by type of trip and residence. This means there were 54 separate response rates. However, for the five study area States, the best weighted response rate was 99 percent and the worst 88 percent.

Table 31.—*Standard error of total skier expenditure by item and residence, 1968-69 season*[1]

(Thousands of dollars)

Item	Residence									Total
	Illinois	Indiana	Michigan	Minnesota	Ohio	Wisconsin	Iowa, South Dakota, North Dakota	All other: U.S.	Non-U.S.	
Transportation	1,052	46	1,334	815	336	639	183	91	42	2,510
Lodging	988	75	984	714	199	329	108	3	32	2,192
Meals	716	58	1,123	746	269	380	171	39	47	2,102
Equipment rental	191	19	240	119	288	92	32	13	40	703
After ski entertainment	440	49	823	394	169	229	126	23	15	1,362
Package plans	705	53	409	211	107	260	--	--	--	1,140
Ski lessons	76	14	196	149	66	63	31	2	--	358
Equipment purchased on trip	305	93	493	280	32	175	42	1	1	782
Tow and lift tickets	810	29	1,443	1,072	476	457	98	33	40	2,607
Other expenses on trip	196	28	143	183	16	73	33	2	1	401
Equipment purchased not on trip	2,546	378	6,465	2,394	798	1,092	342	74	205	8,900

1/ An overall weighted response rate is not stated because transportation and other expenditures were estimated separately by type of trip and State of residence. This means there were 54 separate response rates. However, for the five study area States, the best weighted response rate was 99.3 percent and the worst 87.9 percent. Equipment expenditures while not on trip were estimated separately and had a weighted response rate of 96.6 percent (table 35).

Table 32.—*Average skier expenditure*[1] *per day of trip, by trip type and residence, 1968-69 season*[2]

Residence	Average for all trips	Single-day trip	Weekend trip	Vacation trip
Illinois	16.49	11.21	23.15	27.67
Indiana	25.77	18.57	30.07	28.98
Michigan	13.15	9.73	18.23	23.34
Minnesota	12.61	9.66	16.79	19.17
Ohio	19.30	16.29	21.31	20.13
Wisconsin	11.71	8.97	14.40	18.95
Iowa, South Dakota, and North Dakota	18.09	18.57	14.95	23.29
All other U.S.	11.26	10.08	12.11	21.32
Non-U.S.3/	12.24	9.59	13.22	17.93
Total	13.70	10.16	18.07	22.19

1/ Excludes transportation costs and equipment expenditure while not on trip.

2/ Weighted response rate for single-day trips was 79 percent, for weekend trips 36 percent, and for vacation trips 14 percent. Actual response is better than indicated because all skiers did not take all kinds of trips and could not have answered expenditure questions.

3/ Primarily Canadian.

Table 33.—*Average skier expenditure*[1] *per day of trip, by type of trip and item, 1968-69 season*[2]

Item	Average for all trips	Single-day trip	Weekend trip	Vacation trip
Transportation	2.75	1.93	3.34	5.50
Lodging	1.80	.00	4.22	5.20
Meals	2.91	2.15	3.97	4.25
Equipment rental	1.11	1.32	.92	.48
After-ski entertainment	1.43	.97	2.08	2.27
Package plans	.86	.00	1.57	3.56
Ski lessons	.33	.37	.25	.37
Equipment purchased	1.03	.89	1.19	1.33
Tow and lift tickets	4.02	4.25	3.57	3.95
Other expenses on trip	.43	.32	.43	.98
Total	16.67	12.19	21.55	27.88

1/ Includes transportation, but excludes equipment expenditure while not on trip.
2/ Weighted response rate not available.

Table 34.—*Standard error of average skier expenditure per day of trip by type of trip and item, 1968-69 season* 1,2

Item	Average for all trips	Single-day trip	Weekend trip	Vacation trip
Transportation	0.15	0.12	0.26	0.57
Lodging	.16	.00	.27	.41
Meals	.12	.13	.20	.26
Equipment rental	.11	.17	.12	.08
After-ski entertainment	.12	.12	.20	.16
Package plans	.13	.00	.28	.69
Ski lessons	.04	.06	.06	.07
Equipment purchased	.21	.32	.22	.15
Tow and lift tickets	.09	.10	.17	.57
Other expenses on trip	.06	.07	.07	.18
Total	1.44	1.34	1.97	3.18

1/ Includes transportation, excludes equipment expenditure while not on trip.
2/ Weighted response rate not available.

Table 35.—*Annual skier expenditure while not on ski trips for equipment and supplies, 1968-69 season*[1]

Residence	Skiers making purchases	Average expenditure per skier[2]	Total expenditure
	Percent	Dollars	Thousand dollars
Illinois	73.3	69.44	3,757
Indiana	83.4	142.77	510
Michigan	79.5	83.04	10,673
Minnesota	75.7	78.74	6,194
Ohio	57.5	97.61	841
Wisconsin	76.8	75.68	3,791
Iowa, South Dakota, and North Dakota	55.1	72.36	433
All other U.S.	27.2	30.45	339
Non-U.S.[3]	63.0	59.99	507
Total	74.3	77.37	27,045

1/ Weighted response rate 96 percent.
2/ Average based on all skiers.
3/ Primarily Canadian.

Table 36.—*Average one-way mileage per trip by residence and type of trip, 1968-69 season* 1

Residence	Total			Auto trips			Commercial carrier trips		
	Day	Weekend	Vacation	Day	Weekend	Vacation	Day	Weekend	Vacation
Illinois	109	262	845	98	248	651	172	338	1,135
Indiana	74	313	487	74	278	386	0	900	1,200
Michigan	61	205	607	59	204	477	72	223	1,297
Minnesota	55	205	811	44	191	678	130	302	1,085
Ohio	109	378	498	90	332	448	360	529	673
Wisconsin	64	255	719	63	227	563	73	398	935
Iowa, South Dakota, and North Dakota	83	289	581	83	285	631	50	350	553
All other U.S.	39	269	680	39	171	583	0	321	1,200
Non-U.S.[2]	63	260	497	63	260	497	0	0	0
Total	68	237	706	62	222	564	111	345	1,035

1/ Weighted response rate 94 percent.
2/ Primarily Canadian.

Table 37.—*Percentage of skiers traveling by auto, by one-way distance class, type of trip, and residency class, 1968-69 season*[1]

One-way distance	Total		Day trip		Weekend trip		Vacation trip	
	Resident[2]/	Non-resident	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident
Miles								
0-25	15.0	6.0	26.7	12.6	0.3	0.0	0.1	1.2
26-50	15.1	12.0	26.2	26.1	1.2	.0	.0	.0
51-75	11.8	12.3	18.2	24.4	4.3	2.4	.5	1.2
76-100	5.3	8.1	7.8	5.3	2.5	5.2	.9	2.7
101-125	6.5	10.5	6.5	11.9	8.1	11.8	.7	2.0
126-150	2.2	.7	1.5	1.6	3.6	.0	1.3	.0
151-200	9.4	6.8	3.6	5.5	19.8	10.0	5.7	1.8
201-250	10.3	5.5	3.0	.8	21.1	11.8	13.8	2.8
251-300	7.4	2.7	1.2	.4	15.9	5.5	14.0	2.4
301-350	5.1	11.0	.3	.0	11.3	23.0	11.1	13.1
351-400	2.0	1.9	.1	.0	4.4	3.7	5.7	2.9
401-500	1.5	8.9	.0	.0	2.8	17.2	6.9	14.2
501-750	1.2	6.3	.0	.9	1.3	4.2	7.5	30.3
751-1,000	.7	1.5	.0	7.1	.2	.8	3.9	7.8
Over 1,000	2.5	.9	.0	.0	.3	.0	25.1	6.7
Nonresponse	4.0	4.9	4.9	3.4	2.9	4.4	2.8	10.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Weighted response rate for single-day trips was 71 percent, for weekend trips 46 percent, and for vacation trips 13 percent. Actual response is better than indicated because all skiers did not take all kinds of trips and could not have answered certain travel questions.

2/ A resident is anyone living in one of the five study area States.

Table 38.—*Percentage of trips by form of transportation, type of trip, and residency class, 1968-69 season* [1]

Transportation	Total		Day trip		Weekend trip		Vacation trip	
	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident
Auto	85.0	86.1	87.1	98.2	88.0	79.5	67.1	73.9
Bus	10.4	8.2	12.4	1.8	9.2	16.7	4.5	.8
Plane	3.2	3.2	.3	.0	1.1	3.8	22.5	10.0
Train	.9	2.4	.1	.0	.5	.0	5.7	15.3
Other	.5	.1	.2	.0	1.2	.0	.2	.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Weighted response rate not available.

Table 39.—*Percentage of skiers 19 years and older, by family income class and residence, 1968-69 season* [1]

Residence	Family income class							Total all classes
	Less than 4,000	4,000 to 6,499	6,500 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 or more	Non-response	
Illinois	5.5	15.6	16.9	24.0	18.3	14.5	5.1	100
Indiana	18.7	3.9	11.6	16.8	16.8	28.3	3.8	100
Michigan	6.3	6.8	24.5	24.9	20.8	10.2	6.5	100
Minnesota	12.7	6.2	18.3	30.6	19.5	10.0	2.7	100
Ohio	.1	14.8	32.6	17.8	17.4	17.2	.0	100
Wisconsin	12.8	12.9	16.8	29.9	11.0	11.9	4.8	100
Iowa, South Dakota, and North Dakota	2.0	11.9	30.7	4.3	35.2	15.9	.0	100
All other U.S.	2.3	.0	8.7	65.4	17.1	1.5	5.0	100
Non-U.S.[2]/	12.8	16.3	5.6	50.0	6.6	2.1	6.7	100
Total	8.6	9.6	19.4	28.6	18.0	11.2	4.6	100

1/ Weighted response rate for skiers 19 years and older was 98 percent.

2/ Primarily Canadian.

Table 40.—*Expenditure by skiers 19 years and older, by family income class and type of trip,*[1] *1968-69 season*

TOTAL SEASONAL EXPENDITURE (THOUSANDS OF DOLLARS)[2/]

Type of trip	Income class							Total
	Less than 4,000	4,000 to 6,499	6,500 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 or more	Non-response	
Day	620	847	1,579	2,044	1,723	956	327	8,096
Weekend	425	803	2,162	2,761	2,075	1,656	257	10,138
Vacation	416	688	1,193	2,038	3,631	2,766	453	11,187
Total	1,461	2,339	4,934	6,843	7,429	5,375	1,037	29,421
EXPENDITURE PER DAY OF TRIP (DOLLARS)[3/]								
Day	10.03	13.44	12.99	14.29	13.38	13.83	10.66	13.20
Weekend	16.62	18.70	23.31	22.73	25.35	29.63	22.45	23.48
Vacation	16.49	28.58	25.41	24.54	33.14	30.56	38.09	28.34
Total	12.39	16.34	17.69	18.11	21.07	22.96	16.41	18.55

1/ Excludes equipment while not on trip, includes transportation.
2/ Weighted response rate approximately 97 percent for trip expenditure items and 93 percent for transportation of skiers 19 years and older.
3/ Weighted response rate approximately 72 percent of skiers 19 years and older.

Table 41.—*Average number of days skied per skier 19 years and older, by family income class and type of trip, 1968-69 season* 1

Type of trip	Income class						Non-response	Average
	Less than 4,000	4,000 to 6,499	6,500 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 or more		
Day	3.1	2.6	3.2	2.8	3.7	3.4	3.7	3.2
Weekend	1.0	1.5	1.3	1.3	1.6	1.8	1.0	1.4
Vacation	.9	.9	.7	1.0	2.2	2.8	.9	1.3
Total	5.0	5.0	5.2	5.1	7.5	8.0	5.6	5.9

1/ Weighted response rate for skiers 19 years and older was 98 percent.

Table 42.—*Percentage of skiers 19 years and older, by trip combination and family income class, 1968-69 season* 1

Trip type or combination	Family income class							Total all classes
	Less than 4,000	4,000 to 6,499	6,500 to 9,999	10,000 to 14,999	15,000 to 24,999	25,000 or more	Non-response	
Day only	11.3	10.3	20.5	29.5	14.5	7.9	5.9	100
Weekend only	4.7	9.9	25.4	29.7	15.3	10.5	4.4	100
Day and weekend	6.8	11.0	18.2	26.3	20.4	14.2	3.1	100
Vacation only	7.1	.0	11.3	26.7	22.7	28.3	4.0	100
Day and vacation	4.8	.9	9.0	32.7	27.2	21.7	3.7	100
Weekend and vacation	5.9	3.2	9.1	31.3	33.8	16.7	.0	100
Day, weekend, and vacation	6.1	10.6	10.5	22.4	29.3	19.1	2.0	100
Nonresponse	3.8	7.8	3.7	22.9	48.8	13.0	.0	100
Total	8.6	9.6	19.4	28.6	18.0	11.2	4.6	100

1/ Weighted response rate for skiers 19 years and older was 98 percent.

Table 43.—*Percent of skiers, by residence, sex, and marital status, 1968-69 season* [1]

Residence	Married			Unmarried			Non-response	Total
	Male	Female	Total	Male	Female	Total		
Illinois	24.8	16.7	41.5	22.4	33.8	56.2	2.2	100
Indiana	48.3	23.0	71.3	6.8	21.9	28.7	.0	100
Michigan	16.8	11.9	28.7	36.5	33.7	70.3	1.0	100
Minnesota	22.7	13.7	36.4	30.5	32.5	63.0	.6	100
Ohio	22.2	30.6	52.9	16.7	30.4	47.1	.0	100
Wisconsin	24.8	17.4	42.1	28.9	27.1	56.0	1.9	100
Iowa, South Dakota, and North Dakota	18.8	7.8	26.6	47.0	26.4	73.4	.0	100
All other U.S.	15.9	3.7	19.6	66.3	14.1	80.4	.0	100
Non-U.S.[2]	31.9	22.5	54.4	28.5	17.1	45.6	.0	100
Total	21.4	14.3	35.7	32.1	31.1	63.2	1.1	100

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 44.—*Percentage of skiers, by residence and occupation, 1968-69 season*[1]

Residence	Occupation									Total
	Student	Professional	Manager or proprietor	Clerical or sales	Housewife	Craftsman or foreman	Operative or laborer	Service worker	Other	
Illinois	42.9	15.5	9.8	13.6	5.5	1.6	1.1	6.3	3.8	100
Indiana	24.5	12.7	20.3	10.8	7.8	--	--	21.5	2.4	100
Michigan	61.1	17.2	4.8	5.2	2.9	2.0	.1	6.0	.7	100
Minnesota	54.1	23.6	8.2	6.4	.8	.9	.2	5.4	.4	100
Ohio	19.4	37.6	9.3	14.8	7.9	--	--	11.1	--	100
Wisconsin	43.8	16.3	10.1	6.7	3.0	3.5	.6	13.5	2.5	100
Iowa, South Dakota, and North Dakota	49.5	28.6	1.4	3.1	4.6	1.7	5.5	.9	4.6	100
All other U.S.	70.0	21.1	5.2	3.2	--	--	--	--	.6	100
Non-U.S.[2]	35.9	29.9	11.6	--	5.4	--	--	8.9	4.4	100
Total	52.3	19.3	7.5	7.1	3.0	1.7	.4	7.1	1.5	100

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 45.—*Percentage of skiers by education class and residence, 1968-69 season*[1]

Residence	Years of education						Total
	1-8	9-12	13-16	17-19	20 or more	Non-response	
Illinois	3.0	37.4	47.0	9.4	3.1	--	100
Indiana	9.8	27.6	52.4	8.4	1.7	--	100
Michigan	11.6	46.3	31.0	6.9	3.4	.6	100
Minnesota	9.0	30.1	48.7	8.5	3.5	.2	100
Ohio	1.2	13.2	70.6	12.4	2.6	--	100
Wisconsin	5.9	36.6	46.2	8.4	1.7	1.2	100
Iowa, South Dakota, and North Dakota	--	26.0	44.4	17.8	11.8	--	100
All other U.S.	2.4	12.7	75.3	9.5	--	--	100
Non-U.S.[2]	2.4	16.6	58.6	9.7	12.7	--	100
Total	7.9	36.7	43.1	8.3	3.4	.5	100

1/ Weighted response rate 100 percent.
2/ Primarily Canadian.

Table 46.—*Past and projected skier visits to the study area and past and projected study area population, income per household, and number of ski areas*[1]

Season	Projection			Estimated study area		
	Estimated actual	A	B	Population	Income per household	Areas
	Number	Number	Number	Thousands	Dollars	Number
1960-1961	669	699	777	30,171	6,753	112
1961-1962	930	960	894	30,415	6,614	124
1962-1963	1,241	1,220	1,168	30,751	6,883	132
1963-1964	1,494	1,482	1,453	31,166	7,090	142
1964-1965	1,842	1,741	1,790	31,577	7,401	152
1965-1966	1,866	1,998	2,109	31,944	7,789	159
1966-1967	2,489	2,247	2,384	32,248	8,377	159
1967-1968	2,318	2,503	2,295	32,659	8,520	148
1975-1976		4,388	4,124	34,978	10,210	212

1/ See section on Estimating and Projecting Total Attendance for discussion of estimating and projecting attendance. Projection A is made with equation 2; projection B is made with equation 3.

Financial Statements (Tables 47-56)

Each ski area was asked for its income statements and balance sheets for the last 5 years. Some operators refused to release this information and some did not have it. Although this information is not a probability sample, it does represent the largest collection of financial data on the Great Lakes skiing industry to date.

The accounts in the financial tables are intended to follow standard accounting definitions except as noted below.

Gross receipts – other seasonal. – Includes receipts from ski shops, room rental, and miscellaneous items accruing during the skiing season.

Total net income.—Includes *all* net income accruing during the year. This includes net concession receipts (e.g., restaurant or ski shop), capital gains or losses, and miscellaneous income not a regular part of operations, such as interest received or insurance claims.

Other intangible assets.—Goodwill and organization expense are the primary entries in this account.

Accounts payable and notes payable.—Data for some ski areas included notes payable in the accounts payable; therefore, accounts payable are overstated and notes payable understated. Also, some areas included long-term debt currently payable in notes payable. However, the net effect of these procedures does not distort total current liabilities.

Long-term debt.—In many cases the ski-area owner invested using long-term debt rather than equity. Unfortunately, this did not become apparent until it was too late to create a separate account for this type of debt. Presumably, the owner-lenders would be more lenient in their demands for meeting fixed obligations – a point to be considered in analyzing individual balance sheets.

Table 47.—*Total reported gross receipts, by account and receipt class*

Accounts	Annual gross receipts: Less than 25 M dollars		25 M to 49 M dollars		50 M to 99 M dollars		100 M to 249 M dollars		250 M or more dollars	
	M dollars	Number areas[1]	M dollars	Number areas[1]	M dollars	Number areas[1]	M dollars	Number areas[1]	M dollars	Number areas[1]
1967-68 SEASON										
Gross receipts										
Tow and lift tickets	72.1	20	116.1	5	179.6	4	101.7	1	345.5	2
Restaurant	15.9	11	17.2	3	33.4	4	22.4	1	90.4	2
Bar	--	--	7.6	1	1.5	1	2.6	1	37.0	1
Ski rental	5.7	8	13.6	2	38.8	4	17.2	1	54.3	2
Other seasonal	10.9	8	32.1	5	34.4	4	2.2	1	61.8	2
Non-seasonal	--	--	--	--	1.8	1	--	--	--	--
Total gross receipts	104.6	20	186.6	5	289.5	4	146.1	1	589.0	2
1966-67 SEASON										
Gross receipts										
Tow and lift tickets	126.3	28	244.6	11	212.5	6	233.0	3	1,851.7	8
Restaurant	18.5	14	49.7	8	95.2	5	45.6	3	691.8	6
Bar	.5	1	7.2	1	31.9	2	8.9	1	303.7	5
Ski rental	9.9	9	39.2	8	27.7	4	39.5	3	319.2	6
Other seasonal	9.9	11	58.8	9	22.4	4	19.6	3	398.2	8
Non-seasonal	--	--	2.1	2	67.6	1	--	--	742.6	3
Total gross receipts	165.1	28	401.7	11	457.2	6	346.6	3	4,307.2	8
1965-66 SEASON										
Gross receipts										
Tow and lift tickets	105.0	19	228.3	9	167.7	6	82.7	1	940.7	5
Restaurant	14.2	16	28.9	5	106.4	6	32.1	1	552.6	4
Bar	3.6	1	2.6	2	36.5	2	--	1	265.5	5
Ski rental	10.9	11	29.1	6	36.3	5	19.6	1	128.6	3
Other seasonal	12.6	11	33.9	7	22.4	5	41.2	1	292.9	5
Non-seasonal	--	--	2.8	1	31.3	1	--	1	635.5	3
Total gross receipts	146.3	19	325.6	9	400.6	6	175.6	1	2,815.8	5
1964-65 SEASON										
Gross receipts										
Tow and lift tickets	113.3	16	125.4	5	145.6	4	147.6	2	401.5	3
Restaurant	16.1	9	29.7	4	36.4	4	198.7	2	472.1	3
Bar	--	--	--	--	2.3	1	--	--	191.2	3
Ski rental	10.3	7	20.6	3	17.8	3	29.4	1	111.5	3
Other seasonal	11.2	8	20.3	4	10.8	4	33.1	2	176.1	3
Non-seasonal	--	--	29.7	2	--	--	--	--	468.9	2
Total gross receipts	150.9	16	225.7	5	212.9	4	408.8	2	1,821.3	3
1963-64 SEASON										
Gross receipts										
Tow and lift tickets	91.4	17	147.2	6	34.1	1	273.6	2	162.5	1
Restaurant	27.8	12	23.7	4	7.8	1	2.6	1	42.2	1
Bar	.5	1	--	--	--	--	--	--	19.0	1
Ski rental	11.8	8	21.7	5	8.4	1	17.5	1	63.9	1
Other seasonal	20.4	7	25.2	6	5.1	1	17.8	2	34.8	1
Non-seasonal	--	--	4.0	2	--	--	--	--	--	--
Total gross receipts	151.9	17	221.8	6	55.4	1	311.5	2	322.4	1
1962-63 SEASON										
Gross receipts										
Tow and lift tickets	30.5	7	80.4	5	30.2	1	77.3	1	465.2	2
Restaurant	13.5	5	17.7	3	8.2	1	51.1	1	42.7	1
Bar	--	--	--	--	--	--	51.1	1	17.9	1
Ski rental	2.1	2	12.6	3	16.5	1	--	--	71.5	1
Other seasonal	2.8	3	45.3	3	5.8	1	21.3	1	36.3	2
Non-seasonal	--	--	2.8	1	--	--	23.1	1	--	--
Total gross receipts	48.9	7	158.8	5	60.7	1	223.9	1	573.6	2

1/ Indicates the number of ski areas having the particular source of income.

Table 48.—*Total reported income statements, by receipt class*

1967-68 SEASON

Accounts	Total		Annual gross receipts: Less than 25 M dollars		25 M to 49 M dollars		50 M to 99 M dollars		100 M to 249 M dollars		250 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Total gross receipts	1,230.0	25	83.4	11	229.0	6	376.1	5	278.8	2	262.7	1
Total net income[1/]	10.9	8	3.1	4	4.2	2	--	--	3.6	2	--	--
Expenses												
Depreciation[2/]	173.2	13	19.8	3	33.1	4	52.0	3	26.1	2	42.2	1
Interest[2/]	67.0	15	6.6	4	8.1	4	32.1	4	14.0	2	6.2	1
All other	966.0	25	101.8	11	186.6	6	301.2	5	183.1	2	193.2	1
Total expenses	1,206.2	25	128.2	11	227.8	6	385.3	5	223.2	2	241.6	1
Profit before Federal income tax	34.7	25	-41.7	11	5.4	6	-9.2	5	59.1	2	21.1	1
1966-67 SEASON												
Total gross receipts	5,907.8	48	140.4	15	463.6	13	679.7	9	346.6	3	4,277.5	8
Total net income	202.1	19	2.8	5	1.5	4	.9	1	34.7	3	162.2	6
Expenses												
Depreciation	943.1	37	27.3	7	91.9	11	86.3	8	50.1	3	687.5	8
Interest	411.7	33	4.4	6	24.2	9	43.6	7	29.2	3	310.3	8
All other	4,740.3	48	141.5	15	393.8	13	579.2	9	248.9	3	3,376.9	8
Total expenses	6,095.1	48	173.2	15	509.9	13	709.1	9	328.2	3	4,374.7	8
Profit before Federal income tax	14.8	48	-30.0	15	-44.8	13	-28.5	9	53.1	3	65.0	8
1965-66 SEASON												
Total gross receipts	4,516.7	46	168.7	20	441.1	12	400.7	6	412.5	2	3,093.7	6
Total net income	95.7	14	2.0	3	3.1	4	2.2	2	8.0	1	80.4	4
Expenses												
Depreciation	904.0	35	33.0	10	127.4	11	68.4	6	94.1	2	581.1	6
Interest	299.7	31	7.2	8	32.4	11	23.1	4	15.1	2	221.9	6
All other	3,896.9	46	168.5	20	472.3	12	348.9	6	353.5	2	2,553.7	6
Total expenses	5,100.6	46	208.7	20	632.1	12	440.4	6	462.7	2	3,356.7	6
Profit before Federal income tax	-488.3	46	-38.0	20	-187.9	12	-37.5	6	-42.3	2	-182.6	6
1964-65 SEASON												
Total gross receipts	3,492.0	37	186.6	19	288.1	7	216.4	4	408.8	2	2,392.1	5
Total net income	20.1	15	3.8	7	1.8	2	2.7	3	5.8	1	6.0	2
Expenses												
Depreciation	666.2	26	32.2	9	62.2	6	55.8	4	76.6	2	439.4	5
Interest	254.8	26	10.1	9	19.4	6	21.1	4	36.2	2	168.0	5
All other	2,801.6	37	165.2	19	231.9	7	170.4	4	283.8	2	1,950.3	5
Total expenses	3,722.6	37	207.5	19	313.5	7	247.3	4	396.6	2	2,557.7	5
Profit before Federal income tax	210.5	37	-17.1	19	-23.6	7	-28.2	4	18.0	2	-159.6	5
1963-64 SEASON												
Total gross receipts	1,600.6	33	167.6	19	286.9	8	55.4	1	512.6	3	578.1	2
Total net income	22.8	9	.4	2	5.7	4	--	--	8.9	2	7.8	1
Expenses												
Depreciation	370.9	23	33.5	10	86.1	7	9.2	1	114.1	3	128.0	2
Interest	101.0	22	6.0	8	25.0	8	1.6	1	33.8	3	34.6	2
All other	1,323.0	33	149.0	19	266.7	8	48.0	1	351.7	3	507.6	2
Total expenses	1,794.9	33	188.5	19	377.8	8	58.8	1	499.6	3	670.2	2
Profit before Federal income tax	-171.5	33	-20.5	19	-85.2	8	-3.4	1	21.9	3	-84.3	2
1962-63 SEASON												
Total gross receipts	1,513.2	20	70.4	8	221.2	7	60.7	1	223.9	1	937.0	3
Total net income	9.2	7	2.0	2	1.5	3	--	--	--	--	5.7	2
Expenses												
Depreciation	297.2	16	12.8	5	47.3	6	13.2	1	43.2	1	180.7	3
Interest	71.8	16	2.9	5	11.9	6	1.9	1	10.2	1	44.9	3
All other	1,209.4	20	49.0	8	206.8	7	37.2	1	220.1	1	696.3	3
Total expenses	1,578.4	20	64.7	8	266.0	7	52.3	1	273.5	1	921.9	3
Profit before Federal income tax	-56.0	20	7.7	8	-43.3	7	8.4	1	-49.6	1	20.8	3

1/ Number of areas is the number of areas having net income. All other areas did not have any net income.
2/ Some areas did not report their depreciation or interest separately. These areas have all of their expenses included in "all other."

Table 49.—*Total of all reported balance sheets, by asset class, as of end of 1967-68 season*

Accounts[1/]	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	87.6	10	1.4	2	69.8	6	3.7	1	12.7	1
Accounts receivable	25.1	4	--	--	1.9	2	20.0	1	3.2	1
Inventories	32.1	8	2.6	3	16.1	3	6.4	1	7.0	1
Other	18.6	6	.3	1	7.7	3	2.3	1	8.3	1
Total current assets	163.4	11	4.3	3	95.5	6	32.4	1	31.2	1
Noncurrent assets:										
Land	579.1	8	15.7	2	126.0	5	--	--	437.4	1
Buildings and equipment	3,147.1	10	150.9	2	1,241.4	6	352.6	1	1,402.2	1
Accum. deprec.	861.3	10	67.9	2	372.8	6	191.5	1	229.1	1
Net buildings and equipment	2,285.8	11	83.0	3	868.6	6	161.1	1	1,173.1	1
Other intangible assets	30.9	3	--	--	.4	2	30.5	1	--	--
Other tangible assets	199.4	7	1.2	1	3.5	4	39.9	1	154.8	1
Total assets	3,258.6	11	104.2	3	1,094.0	6	263.9	1	1,796.5	1
Current liabilities:										
Accounts payable	133.4	9	10.4	2	63.6	5	37.4	1	22.0	1
Notes payable	428.0	7	14.2	1	246.6	4	46.6	1	120.6	1
Long-term debt cur. pay.	126.3	6	1.0	1	45.7	3	25.1	1	54.5	1
Other	71.7	9	1.8	1	48.9	6	14.7	1	6.3	1
Total current liabilities	759.4	10	27.4	2	404.8	6	123.8	1	203.4	1
Noncurrent liabilities:										
Long-term debt	1,773.7	9	44.9	1	410.9	6	17.5	1	1,300.4	1
Preferred stock	--	--	--	--	--	--	--	--	--	1
Common stock	901.8	11	63.1	3	371.1	6	99.6	1	368.0	1
Capital and other surplus	434.2	3	--	--	56.6	1	9.6	1	368.0	1
Retained earnings	-610.5	10	-31.2	2	-149.4	6	13.3	1	-443.2	1
Total liabilities	3,258.6	11	104.2	3	1,094.0	6	263.8	1	1,796.6	1

1/ Some areas did not report their current asset and liability accounts in detail. Therefore, those amounts are included in "other" and the total accounts, and number of areas is the number reporting detail accounts. Number of areas in the noncurrent accounts is the number reporting nonzero dollar amounts in those accounts.

Table 50.—*Total of all reported balance sheets, by asset class, as of end of 1966-67 season*

Accounts	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	985.3	33	44.2	10	61.6	13	50.8	4	828.7	6
Accounts receivable	320.7	17	1.7	2	30.7	7	10.4	2	277.9	6
Inventories	227.3	29	26.0	9	25.1	10	6.3	4	169.9	6
Other	200.1	22	1.8	4	21.9	10	17.0	2	159.4	6
Total current assets	1,733.4	38	73.7	14	139.3	14	84.5	4	1,435.9	6
Noncurrent assets:										
Land	1,949.1	31	92.0	9	388.4	13	420.1	3	1,048.6	6
Buildings and equipment	18,210.8	40	1,011.4	15	3,498.3	15	2,238.0	4	11,463.1	6
Accum. deprec.	6,116.6	40	326.7	15	1,150.3	15	1,152.7	4	3,486.9	6
Net buildings and equipment	12,118.2	41	708.7	16	2,348.0	15	1,085.3	4	7,976.2	6
Other intangible assets	38.2	8	.8	2	32.7	4	1.3	1	3.4	1
Other tangible assets	479.0	19	11.0	7	47.2	5	282.6	3	138.2	4
Total assets	16,317.9	41	886.1	16	2,955.7	15	1,873.8	4	10,602.3	6
Current liabilities:										
Accounts payable	930.9	33	85.5	10	221.2	14	107.3	4	516.9	5
Notes payable	1,261.2	17	86.4	5	438.3	7	30.0	1	706.5	4
Long-term debt cur. pay.	479.3	17	44.9	4	99.1	6	88.7	3	246.6	4
Other	662.9	31	12.9	9	91.7	13	51.0	4	507.3	5
Total current liabilities	3,334.1	38	229.6	13	850.3	15	277.0	4	1,977.2	6
Noncurrent liabilities:										
Long-term debt	7,704.3	37	368.1	12	1,485.5	15	1,060.6	4	4,790.1	6
Preferred stock	64.2	3	2.4	1	--	--	50.0	1	11.8	1
Common stock	4,201.3	41	413.2	16	1,302.4	15	246.0	4	2,239.7	6
Capital and other surplus	716.4	14	60.1	5	107.2	6	8.2	1	540.9	2
Retained earnings	297.6	38	-187.5	14	-789.6	14	232.0	4	1,042.7	6
Total liabilities	16,317.9	41	886.0	16	2,955.7	15	1,873.8	4	10,602.5	6

Table 51.—*Total of all reported balance sheets, by asset class, as of end of 1965-66 season*

Accounts	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	696.4	40	48.8	11	47.1	17	118.0	7	482.5	5
Accounts receivable	296.4	21	--	--	9.9	12	36.4	5	250.1	4
Inventories	228.8	30	12.6	7	26.9	11	41.0	7	148.3	5
Other	264.3	26	.3	2	23.3	12	121.4	7	119.3	5
Total current assets	1,485.9	42	61.6	11	107.3	19	316.8	7	1,000.2	5
Noncurrent assets:										
Land	2,025.4	31	56.1	5	478.8	17	455.6	4	1,034.9	5
Buildings and equipment	17,948.9	43	626.6	12	4,317.1	19	3,704.7	7	9,300.5	5
Accum. deprec.	5,488.5	43	200.2	12	1,351.8	19	1,492.4	7	2,444.1	5
Net buildings and equipment	12,460.3	43	426.4	12	2,965.2	19	2,212.3	7	6,856.4	5
Other intangible assets	40.8	9	.8	2	32.9	4	3.1	2	4.0	1
Other tangible assets	591.0	25	6.4	5	102.3	12	399.0	4	83.3	4
Total assets	16,603.5	43	551.3	12	3,686.6	19	3,386.8	7	8,978.8	5
Current liabilities:										
Accounts payable	1,657.7	35	52.8	7	736.3	17	292.8	7	575.8	4
Notes payable	1,061.7	16	27.3	4	328.7	6	148.0	2	557.7	4
Long-term debt cur. pay.	329.3	12	6.0	1	89.5	5	95.5	3	138.3	3
Other	271.9	32	5.3	7	95.8	15	72.5	7	98.3	3
Total current liabilities	3,320.7	40	91.5	10	1,250.2	18	608.9	7	1,370.1	5
Noncurrent liabilities:										
Long-term debt	8,560.0	38	241.0	7	1,831.3	19	2,164.9	7	4,322.8	5
Preferred stock	203.6	3	2.4	1	151.2	1	50.0	1	--	--
Common stock	4,372.5	42	263.7	12	1,440.3	19	453.0	6	2,215.5	5
Capital and other surplus	736.2	16	14.9	3	345.1	11	8.2	1	368.0	1
Retained earnings	-589.3	41	-62.1	11	-1,331.5	18	101.8	7	702.5	5
Total liabilities	16,603.5	43	551.3	12	3,686.6	19	3,386.8	7	8,978.9	5

Table 52.—*Total of all reported balance sheets, by asset class, as of end of 1964-65 season*

Accounts	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	721.7	38	30.3	8	88.3	17	94.5	9	508.6	4
Accounts receivable	416.5	26	2.0	1	83.3	15	73.3	6	257.9	4
Inventories	172.5	28	8.2	5	17.6	12	58.1	7	88.6	4
Other	197.1	25	1.0	2	24.6	12	99.4	8	72.1	3
Total current assets	1,507.8	41	41.5	10	213.8	18	325.3	9	927.2	4
Noncurrent assets:										
Land	1,817.7	30	47.3	5	462.2	14	503.8	7	804.4	4
Buildings and equipment	16,678.6	41	587.4	10	3,640.5	18	4,474.1	9	7,976.6	4
Accum. deprec.	4,565.9	41	154.0	10	1,239.3	18	1,214.2	9	1,958.4	4
Net buildings and equipment	12,112.6	41	433.4	10	2,401.0	18	3,259.9	9	6,018.3	4
Other intangible assets	71.6	10	.8	2	33.7	6	2.4	1	34.7	1
Other tangible assets	609.4	23	7.8	5	30.3	7	252.3	7	319.0	4
Total assets	16,119.1	41	530.7	10	3,141.0	18	4,343.7	9	8,103.7	4
Current liabilities:										
Accounts payable	1,781.6	35	59.5	5	752.4	18	434.1	8	535.6	4
Notes payable	494.2	12	39.6	5	69.7	3	42.8	2	342.1	2
Long-term debt cur. pay.	374.4	11	9.8	2	40.7	2	120.8	4	203.1	3
Other	211.1	32	8.7	6	76.1	15	96.8	9	29.5	2
Total current liabilities	2,861.3	39	117.6	8	938.9	18	694.5	9	1,110.3	4
Noncurrent liabilities:										
Long-term debt	7,853.7	37	203.2	7	1,374.7	17	2,923.1	9	3,352.7	4
Preferred stock	215.4	4	2.4	1	50.0	1	163.0	2	--	--
Common stock	4,131.9	40	202.7	10	1,267.9	18	443.3	8	2,218.0	4
Capital and other surplus	1,051.4	17	49.7	3	391.6	9	242.1	4	368.0	1
Retained earnings	5.3	39	-44.9	9	-882.0	17	-122.4	9	1,054.6	4
Total liabilities	16,119.0	41	530.7	10	3,141.0	18	4,343.6	9	8,103.7	4

Table 53.—*Total of all reported balance sheets, by asset class, as of end of 1963-64 season*

Accounts	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	541.7	35	35.3	14	60.0	12	28.0	7	418.4	2
Accounts receivable	194.0	23	13.7	4	32.4	11	15.9	6	132.0	2
Inventories	168.3	28	14.5	9	42.3	10	86.7	7	24.8	2
Other	217.0	22	4.5	4	38.6	9	149.0	8	24.9	1
Total current assets	1,121.0	38	68.0	14	173.3	13	279.6	9	600.1	2
Noncurrent assets:										
Land	1,127.0	31	114.9	11	369.6	10	427.8	8	214.7	2
Buildings and equipment	10,072.7	39	1,071.7	15	2,286.2	13	3,626.3	9	3,088.5	2
Accum. deprec.	3,007.6	38	300.1	14	785.8	13	939.0	9	982.7	2
Net buildings and equipment	7,072.9	39	771.5	15	1,508.3	13	2,687.3	9	2,105.8	2
Other intangible assets	161.0	10	2.0	2	138.1	5	20.9	3	--	--
Other tangible assets	277.3	16	8.8	6	17.7	3	156.9	5	93.9	2
Total assets	9,759.2	39	965.2	15	2,207.0	13	3,572.5	9	3,014.5	2
Current liabilities:										
Accounts payable	1,289.3	34	143.6	11	335.9	13	569.8	8	240.0	2
Notes payable	79.8	9	28.8	5	6.0	1	45.0	3	--	--
Long-term debt cur. pay.	205.4	12	22.1	4	64.1	4	68.2	3	51.0	1
Other	396.3	30	31.1	10	72.2	10	60.2	9	232.8	1
Total current liabilities	1,970.8	38	225.6	14	478.2	13	743.2	9	523.8	2
Noncurrent liabilities:										
Long-term debt	4,491.4	34	363.5	11	916.1	12	2,334.6	9	877.2	2
Preferred stock	253.4	5	2.4	1	50.0	1	201.0	3	--	--
Common stock	2,463.0	37	425.8	14	678.7	12	758.5	9	600.0	2
Capital and other surplus	621.2	14	229.0	5	154.5	4	237.7	5	--	--
Retained earnings	-40.6	37	-281.2	14	-70.4	12	-702.5	9	1,013.5	2
Total liabilities	9,759.2	39	965.2	15	2,207.1	13	3,572.5	9	3,014.5	2

Table 54.—*Total of all reported balance sheets, by asset class, as of end of 1962-63 season*

Accounts	Total		Asset class: Less than 100 M dollars		100 M to 249 M dollars		250 M to 999 M dollars		1,000 M or more dollars	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:										
Cash	399.5	23	5.6	7	64.8	9	36.3	5	292.8	2
Accounts receivable	225.8	15	.8	3	20.2	5	19.4	5	185.4	2
Inventories	128.2	16	5.6	3	11.2	5	55.1	6	56.3	2
Other	239.6	18	--	--	28.6	9	189.4	8	21.6	1
Total current assets	993.1	26	12.0	7	124.8	9	300.2	8	556.1	2
Noncurrent assets:										
Land	905.9	23	50.1	6	274.7	8	408.6	7	172.5	2
Buildings and equipment	7,646.1	26	559.1	7	1,278.4	9	3,046.4	8	2,762.2	2
Accum. deprec.	1,967.7	26	174.5	7	418.2	9	643.2	8	731.8	2
Net buildings and equipment	5,696.4	26	384.6	7	860.2	9	2,421.2	8	2,030.4	2
Other intangible assets	116.9	4	.2	1	112.4	2	4.3	1	--	--
Other tangible assets	155.8	13	1.4	3	17.2	4	39.9	4	97.3	2
Total assets	7,868.2	26	448.3	7	1,389.4	9	3,174.2	8	2,856.3	2
Current liabilities:										
Accounts payable	999.5	21	32.6	4	229.1	9	297.8	6	340.0	2
Notes payable	58.7	6	8.4	3	--	--	50.3	3	--	--
Long-term debt cur. pay.	160.1	7	5.5	1	31.1	2	72.5	3	51.0	1
Other	166.3	19	15.9	7	38.2	4	67.3	7	44.9	1
Total current liabilities	1,384.6	25	62.4	7	298.4	9	587.9	7	435.9	2
Noncurrent liabilities:										
Long-term debt	4,087.4	24	185.4	5	634.3	9	2,327.5	8	940.2	2
Preferred stock	54.2	3	2.4	1	--	--	51.8	2	--	--
Common stock	1,740.1	25	203.5	7	400.6	8	536.0	8	600.0	2
Capital and other surplus	497.3	9	23.1	3	94.9	2	379.3	4	--	--
Retained earnings	104.7	25	-28.5	7	-38.7	8	-708.3	8	880.2	2
Total liabilities	7,868.2	26	448.3	7	1,389.4	9	3,174.2	8	2,856.3	2

Table 55.—*Summary income statements for 27 ski areas*[1] *willing or able to supply them, by season*

Accounts	Season							
	1966-67		1965-66		1964-65		1963-64	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Total gross receipts	2,655.8	27	2,022.8	27	1,889.5	27	1,475.0	27
Total net income	146.0	14	52.5	11	18.4	13	22.8	9
Expenses								
Depreciation	404.3	20	435.9	20	384.3	20	350.3	19
Interest	189.4	20	121.6	21	127.8	21	97.2	19
All other	2,071.7	27	1,607.0	27	1,443.1	27	1,216.2	27
Total expenses	2,665.4	27	2,164.5	27	1,955.2	27	1,663.7	27
Profit before Federal income tax	136.4	27	-89.2	27	-47.3	27	-165.9	27

1/ Eighteen of these ski areas are also included in table 56.

Table 56—*Total balance sheets for 26 ski areas*[1] *willing or able to supply them, by season*

Accounts	Season							
	1966-67		1965-66		1964-65		1963-64	
	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas	M dollars	Number areas
Current assets:								
Cash	186.2	23	195.8	24	149.5	24	77.7	24
Accounts receivable	174.9	10	166.4	13	202.0	15	140.5	14
Inventories	42.6	18	41.9	18	57.6	18	92.8	18
Other	73.5	14	108.5	16	48.6	15	60.0	13
Total current assets	477.3	24	512.6	25	457.7	26	371.0	25
Noncurrent assets:								
Land	932.9	20	853.0	20	738.0	20	699.8	21
Buildings and equipment	7,825.3	26	7,297.8	26	6,312.7	26	5,461.1	26
Accum. deprec.	3,050.3	26	2,527.9	26	1,962.8	26	1,513.0	26
Net buildings and equipment	4,775.0	26	4,769.9	26	4,349.9	26	3,948.1	26
Other intangible assets	34.1	6	35.0	7	136.9	9	138.3	6
Other tangible assets	336.8	10	489.7	15	229.6	14	194.6	10
Total assets	6,556.1	26	6,660.3	26	5,912.1	26	5,351.8	26
Current liabilities:								
Accounts payable	366.0	20	746.0	14	713.1	22	510.6	21
Notes payable	642.0	10	462.4	4	148.1	9	71.4	8
Long-term debt cur. pay.	278.3	11	236.5	5	236.7	9	196.8	11
Other	198.8	21	122.7	11	104.1	20	94.8	19
Total current liabilities	1,485.0	25	1,567.7	25	1,202.0	25	873.7	25
Noncurrent liabilities:								
Lont-term debt	3,236.6	24	3,392.2	24	2,786.8	23	2,535.2	23
Preferred stock	52.4	2	203.6	3	203.6	3	201.6	3
Common stock[2]	2,015.2	25	1,976.6	25	1,887.5	25	1,860.1	25
Capital and other surplus	174.3	10	272.6	11	263.8	11	242.4	9
Retained earnings	-407.4	24	-752.3	24	-431.6	24	-361.2	24
Total liabilities	6,556.1	26	6,660.3	26	5,912.1	26	5,351.8	26

1/ Eighteen of these ski areas are also included in table 55.
2/ One of 26 areas is a partnership therefore no common stock appears on balance sheet.

Calculating VTF Capacity of Tows and Lifts

Vertical transport feet per hour, abbreviated as VTF throughout this report, is a commonly used measure of tow and lift capacity (Herrington 1967, p. 38-40). It is calculated by multiplying the vertical rise in feet for each tow or lift by the number of skiers per hour the tow or lift can transport to the top of the hill. This calculation is made for each tow or lift on a ski area and the results added to obtain the VTF capacity for that ski area.

Two points should be noted. First, VTF allways refers to a "per hour" figure because it is the product of vertical rise and skiers *per hour*. Second, the length of the tow or lift has little relation to its capacity for moving skiers up the hill because the concern is with how fast the tow or lift will deposit skiers at the top. Once the tow or lift is "filled" with skiers (for example, each chair occupied), the rapidity with which the chairs reach the top of the hill (skiers per hour) determines the capacity, not the length of the lift.

Estimating Utilization of Ski-Area Capacity (Table 12)

Capacity is usually based on the capacity of the limiting, or "bottleneck," piece of equipment. Ski-area capacity was calculated by the method used by Herrington (1967, p. 61-64) and others. Because the method uses VTF in its calculations there is an implicit assumption that tows and lifts are the limiting factor in a ski-area's productive capacity.

The annual capacity in number of skiers was obtained by the following equation:

$$\frac{\text{Skier Days}}{\text{Season}} = \frac{\text{VTF}}{\text{Hour}} \times \frac{\text{Skier Day}}{\text{VTF}} \times \frac{\text{Hours}}{\text{Day}} \times \frac{\text{Equation 1 Days}}{\text{Season}}$$

The percentage of capacity utilization was calculated by using skier days per season as the denominator and actual attendance as the numerator. Industry utilization was obtained by dividing the total reported attendance by the skier days per season added for reporting ski areas.

Following previous studies (Herrington 1967, Sno-Engineering 1965), it was assumed a skier uses 8,000 VTF per day and that ski areas are open 5 hours per day.[13] The number of days per season was assumed to be 48 and 75 as discussed below.

Two reasons for calculating capacity utilization are to see how fully the present investment is being used and to estimate how much new tow and lift capacity must be added to meet estimated increases in demand. Total days in the skiing season should be used when examining investment utilization because investment is made in the ski area with the hope of a return throughout the entire season. Further, the capacity of the ski area stands ready to be used at any time during this period, pending favorable weather conditions, and at least certain costs are incurred to maintain this readiness. Accordingly, the first part of table 12 uses the mean length of the Great Lakes skiing season (75 days).

The maximum capacity currently available should be considered if capacity utilization is examined to determine new tow and lift capacity requirements. This means utilizaztion should be based on capacity available to the market — the skiable days per season. Further, "hours per day" may be increased to allow for more lighting and "days per season" increased for more snowmaking.

It has been suggested that the demand for skiing shifts depending on the month, regardless of snow conditions. For example, skiers may be ready to participate in other sports by late winter or early spring. Shifts of this type should be considered (if they can be identified) and capacity calculated accordingly. Analyses of new capacity requirements were not made due to limitations of time, money, and data.

A second table was calculated to compare capacity utilization estimates of the Great Lakes industry with those of the eastern and western industries. The second part of table 12 uses the mean skiable days of reporting areas (48 days).

13 The Great Lakes skier may require fewer VTF per day due to the lower vertical rises. However, the author knows of no studies on the subject and uses this figure for lack of better information. If 8,000 is too large, the potential capacity is understated and the percent utilization overstated.

Estimating and Projecting Total Attendance (Tables 4, 5, 13 and 14)

The terms "skier day," "skier visit," and "visit" are all synonymous in this study. They all refer to one person visiting a ski area for all or any part of a day for the purpose of skiing.[14]

Estimating Past Attendance

Surprisingly, many ski areas did not keep attendance records, thereby requiring calculation from gross ticket receipts or outright estimation by the operator. Missing attendance data were of three types: (1) one or more years data but missing data at one or both ends, (2) two or more years data but missing data *between* them, (3) no attendance data.

With the first type of missing data, the annual percentage changes in reported attendance were used to project the existing data both forward and backward. This procedure uses the absolute attendance for each area and estimates only the changes in attendance from reported industry averages. The procedure assumes attendance at a given area changed in the same proportion as that of the industry.

With the second type of missing data, estimates were made by allocating the difference in attendance between available years to the intervening years in proportion to the industrywide changes.

With the third type of missing data, there were no attendance data available, therefore, regression equations were used to estimate 1967-68 season attendance. The attendance was then projected backward using the annual attendance changes as described.

One potential source of error is ski areas that opened and closed before the 1967-68 season may not have been included. For example, an area may have opened in 1960-61 and closed in 1963-64 and not had its attendance estimated during these four seasons. This means attendance could be underestimated in the earlier yars. If the earlier years are underestimated, the compound growth rate of skier attendance is overestimated; that is, attendance grew less rapidly than shown.

14 This definition is identical to Herrington's (1967, p. 32), but apparently differs from Sno-Engineering's (1965, p 3).

Projecting Attendance

Attendance may be projected in many ways. Perhaps the simplest method is to project solely on the trend of attendance over time. However, time trends do not reflect changes in factors that may affect future attendance. Estimation using time trends is dangerous because the factors may change causing unforeseen changes in attendance. This disadvantage may be offset by the ease of predicting the future value of the time-trend variable. That is, it is easy to predict accurately a variable representing the year 1975, but it may be difficult to predict accurately disposable personal income for 1975.

A least squares, stepwise, multiple linear regression was used to examine the relationship between thousands of skier visits per million population, year, real disposable personal income per household, number of ski areas, and the reciprocals of year and real disposable personal income per household. The first statistically significant equation[15] was:

Equation 2

$$\underset{(4.430)}{VISITS = 534.588 - 30{,}684.941\ 1/YEAR}_{(2{,}748.548)}$$

$R^2 = 0.9541$ F = 124.629 Residual d.f. = 6

where: VISITS = thousand of skier visits per season per million study area population. Population is as of July 1 of the second year in the skiing season; e.g., 1967-68 population is as of 7/1/68.

1/YEAR = the reciprocal of YEAR, that is, one divided by YEAR.

YEAR = the last two digits of the first year in a skiing season; e.g., the value of YEAR is "67" for the 1967-68 skiing season.

This equation, which is nothing more than a time trend, is the simplest to understand and use. Further, the use of only 8 years' data makes it doubtful that more sophisticated analysis is justified.

15 The figures in parentheses immediately beneath the dependent variables are the standard errors of the estimate; those in parentheses beneath the independent variables are their standard errors. This convention will be followed hereafter.

When the year and its reciprocal are not allowed to enter the regression the following significant equation is obtained:

Equation 3

VISITS = 100.545 + 0.490 NOARES - 875,763.750 1/DPYHSA
(4.353) (0.169) (Not available)

$R^2 = 0.9630$ F = 65.146 Residual d.f. = 5

where: VISITS = as above
NOARES = the number of ski areas operating in the industry
1/DPYHSA = the reciprocal of DPYHSA
DPYHSA = disposable personal income per household in the study area deflated to the 1957-59 base by the Consumer's Price Index--All Items. Income is as of December 31 of the first year in a skiing season which, in effect, lags income a year.

Total skier visits were estimated by calculating VISITS and multiplying it by the study area population from the Bureau of Census' Series I-B projection.

Projections should be used cautiously. Equation (2) is a time trend, and will always project increasing attendance, regardless of changes in other variables. In addition, both equations are based on past experience and relationships that may change in the future. Although the projections are expected to be reasonably accurate over a period of years, they could be inaccurate for any particular year. For instance, there may be an extremely warm winter resulting in decreased attendance.

The Skier Sample[16]

The study area was stratified and within each stratum a list was made of each day each ski area in the sample was scheduled to be open. One such day (including any night operation) was called an area-day. Area-days were selected with probabilities proportionate to size of attendance on weekdays and weekends-holidays. The sample was controlled to increase the probability that no two areas within a stratum were selected on the same day and that days selected were distributed over the entire season (table 57).

The final stage was a systematic sample, after a random start, of vehicles entering ski-area parking lots. The vehicles were treated as unequal clusters with all skier occupants 13 years and older included in the sample. A skier is anyone who skied one or more times during the 1968-69 season at a ski area in the five-State region. Occupied rooms at ski areas were treated the same way as vehicles.

Table 57.—*Distribution of selected area-days by month and day of week*

Month	Number of area-days		
	Total	Weekend holiday	Weekday
December	33	24	9
January	37	21	16
February	37	20	17
March	32	20	12
April	1	0	1
Total	140	85	55

Response Rates

There were three opportunities for nonresponse: at the ski area for a particular area-day, when skier names and addresses were requested, and when mail questionnaires were not returned. Four out of 140 area-days were missed; equaling a 97 percent response. Just under 90 percent of the selected entrants returned name and address cards and about 66 percent of the mail questionnaires were returned after an original mailing and two followups. Detailed responses to the mail questionnaire were:

Names and addresses obtained	5,893
Names deleted by unbiased methods	2,199
Questionnaires mailed	3,694
Questionnaires returned but not in population	136
Base for response rate calculation	3,558
Questionnaires returned but unusable	74
Questionnaires not returned	1,134
Usable questionnaires	2,350

The calculating formulae for population estimates and variances are available upon request.

[16] The sample design and attendant formulae were developed by Leslie Kish, Program Director, and Martin Frankel, Research Assistant, Survey Research Center, Institute for Social Research, University of Michigan. The author assumes full responsibility for any errors or misapplications.

Statistical Analysis of Factors Associated with Financial Success

One dependent variable (ROR) and 15 independent variables were hypothesized. A least squares, stepwise, multiple linear regression was used to examine the relationships between the dependent and independent variables. A first round of regressions was run resulting in the curves presented in figure 5. All the observations were then classified by several categories, for example, by a series of price categories. The significant variables from the first round of equations were used to test the significance of the classifications and a second round of regressions run on the significant categories. The results of the second round of regressions are in figures 6 and 7.[17]

Measuring Financial Success

The rate of return on total investment (ROR), calculated from ski-area income statements and balance sheets, was used as the dependent variable. The number of areas analyzed was reduced to 27 because calculating ROR required both financial statements. ROR was defined and calculated by the formula:

$$ROR = \frac{PBT - CG - NOPY + INT}{TL - CL + LTDCP} \qquad \text{Equation 4}$$

where:
- PBT = profits before Federal income tax
- CG = capital gains
- NOPY = other nonoperating net income
- INT = interest
- TL = total liabilities
- CL = current liabilities
- LTDCP = long-term debt currently payable.

Where possible, a 2-year average for the 1966-67 and 1967-68 seasons was calculated. Nine ROR's were for the two seasons and 18 for the 1966-67 season only. The range of ROR values was −25.33 percent to +25.12 percent.

Independent variables in the first round of regressions were:

BARCAP	Persons bar capacity.
COMPAR	Number of competing ski areas within 20-minute drive.
NITES	Nights per week skiing is provided.
NOFSE	Number of off-season services provided.
NOINS	Number of certified ski instructors.
POPDIS	Population within 250 miles of ski area decayed over distance.
PRICE	Mean price per skier visit.
RORC	A dummy variable indicating rope only facilities versus combination rope and cable facilities.
SLPGRM	Man-days of slope grooming per season per acre.
SLPVA	A compound variable measuring slope variability.
SNO	The sum of the daily inches of snow on the ground during the skiing season.
TEMP	The sum of the daily maximum and minimum temperatures during the skiing season.
TOLFT	A compound variable measuring the number and types of rope and cable facilities.
VERDRP	Feet of maximum vertical drop.
VTF	Vertical transport feet per hour, as previously defined.

Results of the First Round of Regressions

The stepwise regression was constructed so that every independent variable's relation to the dependent variable is examined before any single variable is added to the equation. Further, the relationships are examined after each variable is added and any variables that have become superfluous are deleted. This process continues, usually, until a preset level of significance is reached. Using a stepwise regression means every factor listed above was examined for its relationship to ROR.

17 For a more detailed discussion see Leuschner, William A. Factors associated with financial success in the midwestern skiing industry. (Unpublished Ph. D. dissertation on file at Univ. Mich., Ann Arbor.) Readers with specific questions are invited to correspond with the author.

The results of the first round of regressions were:

Equation 5

ROR = 14.545 - 10,907.371 1/VTF
(12.620) (4,261.242)
F Level 0.05 0.05
R^2 = 0.208 Residual d.f. = 25

When vertical transport feet were deleted a second equation was obtained:

Equation 6

ROR = -58.407 + 32.807 PRICE - 3.968 $PRICE^2$
(11.565) (9.779) (1.341)
F Level 0.01 0.01 0.01
R^2 = 0.361 Residual d.f. = 24

No other significant equations were obtained when PRICE and PRICE squared were also deleted.

Classifying ROR

Equations 5 and 6 showed the empirical importance of vertical transport feet and price. Next, ROR was classified by these variables to hold their effect constant. The 27 observations were placed in a series of categories depending on an area's average price and VTF. The VTF categories were:

Category 1 — 1,500,000 VTF or more
Category 2 — 700,000 to 1,499,999 VTF
Category 3 — Less than 700,000 VTF

and the PRICE categories were:

Category 1 — Less than $3.00 (PRI1)
Category 2 — $3.00 to $4.00 (PRI2)
Category 3 — Greater than $4.00 (PRI3)

Two more classifications were made. First the 27 observations were classified by whether the areas were rural (RUROR) or urban (URBROR). An urban ski area was one located within 50 miles straight line distance of a city with 50,000 or more population. All others were considered rural. The final classification was by the ski area's geographical location. Lakes Michigan and Huron form a natural barrier around Michigan's Lower Peninsula. The Mackinac Bridge forms a pecuniary and psychological barrier to the north. It seemed likely that customers of Lower Peninsula and Indiana ski area would come from a more restricted area and might differ from those using other ski areas. Accordingly the observations were classified by whether they were in Michigan's Lower Peninsula or Indiana or whether they were in the rest of the study area.

Equations 5 and 6 were then calculated by category within classification. The price and urban/rural classifications were significantly different from the first round of regressions.

Results of the Second Round of Regressions

A second round of stepwise regressions was run on each of the categories for the price and urban/rural classifications. The number of independent variables was further reduced before the second round for technical reasons. Those variables deleted were TEMP, NOINS, COMPAR, NOFSE, and, for the price classification only, PRICE.

The significant results for the price category were:

Equation 7

PRI2 = 114.269 - 0.029 VTF - 80,338.500 1/VTF
(7.541) (0.011) (21,732.723)
F Level 0.01 0.05 0.01
R^2 = 0.666 Residual d.f. = 10

Equation 8

PRI3 = 17.582 - 11,894.562 1/VTF
(5.190) (2,786.180)
F Level 0.01 0.01
R^2 = 0.722 Residual d.f. = 7

No further significant equations were obtained when VTF was deleted from both of these price categories.

The significant results of the urban/rural classification were:

Equation 9

URBROR = -192.295 + 0.010 SNO - 0.015 VTF
(5.104) (0.002) (0.006)
F Level 0.01 0.01 0.05

- 37,512.016 1/VTF + 137.866 PRICE
(8,404.629) (17.888)
F Level 0.01 0.01

- 18.835 $PRICE^2$
(2.967)
F Level 0.01
R^2 = 0.921 Residual d.f. = 9

All significant equations were checked for statistical validity using residual plots except equation 8, which had too few observations to make plots meaningful. In addition, the correlation matrices and standard errors were examined as checks on multicollinearity. The author was satisfied these checks showed no serious violations of the regression model.

Warnings About the Results

All statements based on these regressions are subject to the following warnings:

1. The use of stepwise regressions means the equations should be considered untested hypotheses.

2. There is great diversity among ski areas. The regressions are an average and there can be large divergencies from the average.

3. Except for equation 9, the amount of variation explained by the equations ranges from 21 percent to 72 percent. This leaves ample room for differences in ROR due to unexplained variations.

4. The results are based on 27 ski areas that happened to supply the financial data required. Strictly speaking, generalizations cannot be made about the industry. However, inspection of these areas shows a good distribution of values over the dependent variables, States, VTF sizes, prices, and other independent variables.

5. A factor's lack of statistical significance does not mean it also lacks practical significance.

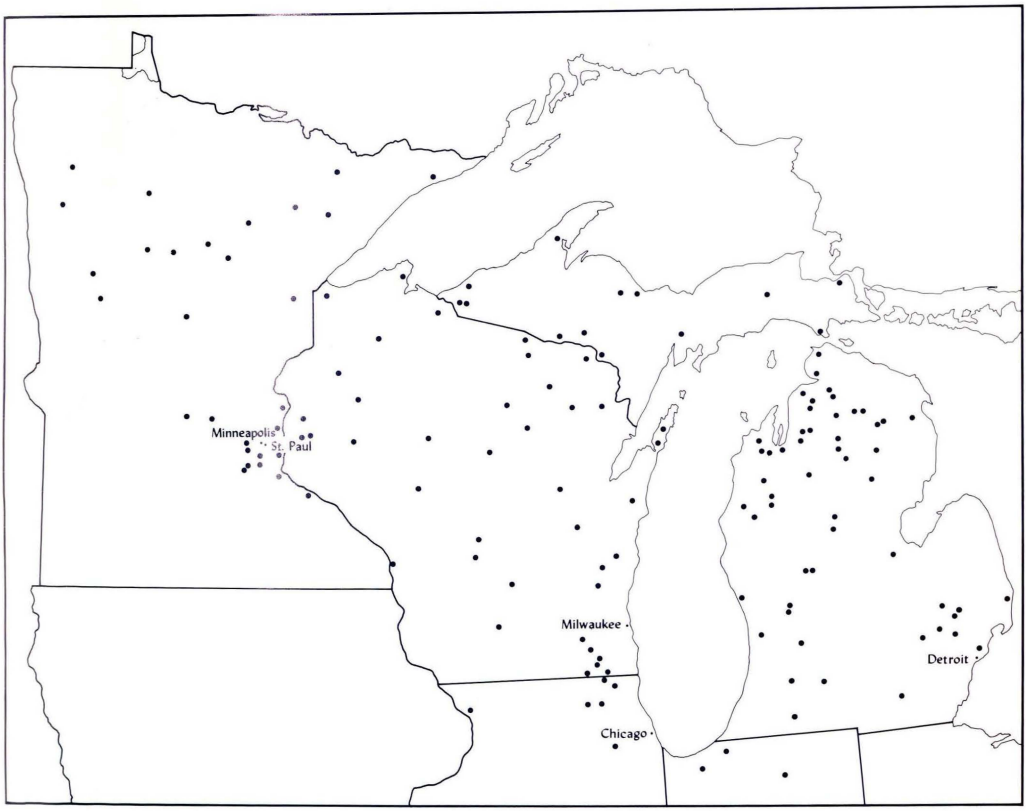
Snowmobiling and Skiing

In the year 1970 snowmobile ownership may reach the half million mark in the Great Lakes area. Does this rapidly growing sport compete with or complement skiing?

Our study showed that organized snowmobile activity is adjacent to half of the ski areas. A majority of these areas reported no effect, or an increase in skier attendance due to snowmobiling. One-fourth felt that snowmobiling increased their ski shop merchandise sales, while almost half saw a beneficial effect on food and beverage sales. Some felt that snowmobile rentals would increase skier attendance.

Although snowmobilers, on the average, are probably older than skiers, many people enjoy both sports. Nearly half of all Great Lakes skiers had ridden a snowmobile within the last 2 years. Many reported that snowmobiling increased their winter outdoor activity an average of 15 days. The compatibility of skiing and snowmobiling may encourage the development of winter sports centers offering both.

LOCATION OF SKI AREAS, 1967-68 SEASON.



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- Conducting forest and range research at over 75 locations ranging from Puerto Rico to Alaska to Hawaii.
- Participating with all State forestry agencies in cooperative programs to protect, improve, and wisely use our Country's 395 million acres of State, local, and private forest lands.
- Managing and protecting the 187-million acre National Forest System.

The Forest Service does this by encouraging use of the new knowledge that research scientists develop; by setting an example in managing, under sustained yield, the National Forests and Grasslands for multiple use purposes; and by cooperating with all States and with private citizens in their efforts to achieve better management, protection, and use of forest resources.

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